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Original Articles.

IODIZED CATGUT.

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Absorbable suture and ligature material has held its place in surgery since Lister first introduced it into general practice. At times it has appeared as though it would become displaced by inabsorbable permanent material, but the general tendency at the present time seems to be in its favor. The improvements which have been made during the last decade in the sterilization of catgut and other absorbable animal sutures have contributed much in establishing and maintaining the confidence of surgeons in their use. There can be very little doubt that catgut will eventually render silk and metal obsolete as materials for buried sutures.

Nature abhors foreign material of all kinds in the living tissues. The ideal material for ligatures and sutures is one that is removable by absorption after it has accomplished the mechanical purposes for which it was employed. During my four months' tour through Europe and the Orient last summer I visited nearly a hundred hospitals and made special inquiries into the kind of suture material in use and the method of its preparation. Some surgeons relied on silk entirely, others used silk and catgut, and the smallest number relied on catgut exclusively. The methods of catgut sterilization were also found greatly at variance, as well as the manner of its preservation. The methods of Von Bergmann, Saul and Elsberg appeared to be most popular. The very fact that so many different methods of sterilization are still in vogue is the very best and most convincing proof that none of these have proved entirely satisfactory. The ideal sterilization of catgut consists in rendering the material not only absolutely sterile, but also mildly antiseptic without impairing its tensile strength and without destroying its durability on the one hand and interfering with its absorbability on the other.

The most recent method of catgut preparation is the one devised by Claudius.[1] The method consists in iodization of the raw material. The investigations made under the direction of his chief, Professor Bloch, were continued for more than a year, and every step taken was supervised by bacteriologic examinations. It was found that a 1 per cent. aqueous solution of iodin destroys the spores of the anthrax bacillus in eight days. The many experiments made by Claudius demonstrated that it requires seven days for the complete sterilization of catgut in this solution. He also ascertained that the iodized catgut is not only absolutely sterile, but at the same time strongly antiseptic. Imbedded in a solid nutrient medium infected with pyogenic microbes the iodin contained in the catgut inhibited the growth of germs some distance from the threads.

The following directions for the iodization are given: The commercial, raw catgut without any preliminary preparation is wound on a glass roll, two strings tied together to each roll. The disinfection is effected by immersion in a 1 per cent. solution of iodin. The solution is made by dissolving one part of iodin and one part of potassic iodid in one hundred parts of water. The solution is prepared by dissolving the potassic iodid in a small quantity of water, to which the iodin, finely powdered, is added and the concentrated solution is then diluted to 1 per cent. The solution and catgut are kept in a bottle with a wide mouth, which is closed with an accurately-fitting glass stopper. The date is written on the label of the bottle. After eight days the catgut is ready for use and is preserved in the same bottle and same solution. Before using the catgut it is immersed on the glass roll in a 3 per cent. solution of carbolic acid or an indifferent sterile fluid for the purpose of removing the iodin from the surface of the threads. The threads are cut in the carbolic acid solution as they are needed. The catgut not used during the operation is returned into the bottle, thus doing away with any unnecessary waste of material. Catgut thus prepared is pitch black, soft, pliable and almost as strong as silk. The knots are firm and not liable to slip.

According to the size of the catgut its removal by absorption takes place in from twelve to sixteen days, being a little more durable than alcohol catgut. It does not irritate the tissues, as the free iodin is soon converted into potassic and sodic iodid by chemical combinations formed with the salts of the tissue fluids.

The iodized catgut has been given an extensive practical test in the Frederick's Hospital, Copenhagen, and has been found eminently reliable. The ease of its preparation, the quality of the product, the results of bacteriologic investigations and what has been ascertained of its practical utility are sufficient inducements to give it a prompt and fair trial in practice. Since 1896 I have relied[2] exclusively on catgut sterilized by Hofmeister's method, but instead of preserving it in an alcoholic solution of bichlorid, I keep it ready for use in the following mixture: Absolute alcohol 950, glycerin 50, iodoform (finely pulverized) 100. The alcohol dissolves part of the iodoform. The catgut can be kept in this

1. M. Claudius: Eine Methode zur Sterilisirung und sterile Aufhebung von Katgut. Deutsche Zeitschrift für Chirurgie, Band lxiv, s. 489.

2. Ideal Catgut Sterilization. THE JOURNAL A. M. A., Dec. 12, 1896.

mixture for any length of time without losing its strength and without becoming brittle. In a very short time the color of the catgut becomes darker, and eventually pitch black. I always preferred old catgut to the recently prepared material, and have therefore been using iodized catgut for more than six years. I have used it to the exclusion of any other kind of catgut in the St. Joseph's Hospital, Presbyterian Hospital and the Surgical Clinic of Rush Medical College. Infection that could be traced to the catgut has been extremely rare. During the autumn quarter of Rush Medical College recently terminated only one case of deep-stitch abscess occurred. This was a case of large ventral hernia. Sutures of silver wire and catgut were employed in closing the parietal defect. It is more than probable that the catgut was contaminated after it was removed from the bottle.

With such uniform satisfactory results it was not without some hesitation that I abandoned the well-tried material for something new. I did so largely on account of the conviction I held that I had practically been using iodized catgut, and that I attributed the excellent results largely to the presence of iodoform and iodin in the material employed. In the paper in which I advocated sterilization of catgut by Hofmeister's method and its preservation in glycerin emulsion I stated:

Catgut to be safe should not only be absolutely sterile but should contain a sufficient quantity of an efficient antiseptic to render it unfit as a culture medium for pathogenic microbes. Most of the preserving solutions contain either corrosive sublimate or carbolic acid. Both of these antiseptics unduly irritate the tissues and increase the primary wound secretion, effects which can not fail in interfering, to a certain extent, with an ideal healing of a wound by primary intention.

The interesting experiments made by Lauenstein leave no doubt that it is almost next to impossible to render the field of operation absolutely aseptic by any of our present methods of disinfection. We are forced to admit that nearly every wound inflicted by the surgeon's knife contains some pathogenic microbes, notwithstanding that the strictest aseptic precautions may have been practiced. The experiments made by Ewald have also furnished positive proof that sterile catgut often contains a sufficient quantity of an unknown toxic substance which, by its destructive action upon the cells engaged in the reparative process, transforms them into pus corpuscles, resulting in the production of a limited aseptic suppuration and the formation of sterile pus. Undoubtedly many of the stitch abscesses which occur in the practice of painstaking aseptic surgeons have such an origin.

These experimental reseaches force on us the conclusion that catgut should not only be properly sterilized, but that it must be made sufficiently antiseptic to at least inhibit the growth, if not destroy the pyogenic microbes which enter the wound during the operation or which may reach it later through the circulation.

The investigations of Claudius have confirmed me in the belief that the iodin in the catgut is of far-reaching value in the prevention of stitch abscesses. The iodin suffices not only in effecting sterilization, but at the same time imparts to the catgut the necessary antiseptic qualities. The iodized catgut behaves in the living tissues like in the infected nutrient medium by inhibiting the growth of pyogenic microbes in its substance and immediate environment.

Iodin possesses marked antiseptic properties, as first shown by Liebig. Fibrin immersed in iodized water does not undergo putrefaction. Putrefaction in pus can be prevented and arrested by the addition of iodin. The addition of a few drops of iodin to fetid pus causes the odor to disappear promptly. The antiseptic properties of weak solutions of iodin in the treatment of suppurating wounds are very manifest. Iodin penetrates tissues, dead and living, quickly and deeply, its power of diffusion is great, qualities which, combined with its pronounced antiseptic properties, must entitle it to be considered the most desirable substance among the chemical agents employed for the sterilization and preservation of catgut.

We have used the iodized catgut prepared according to the directions of Claudius for a number of weeks in the surgical clinic of Rush Medical College, and the results so far have been entirely satisfactory. The raw material prepared in this country has been found more suitable for this method of sterilization than imported catgut from different sources. Some of the imported catgut was made brittle by immersion in the iodin solution the requisite length of time. If a large experience establishes the reliability of iodized catgut, then the method of catgut sterilization has been discovered which will recommend itself on account of its simplicity, more especially to the country practitioner and military surgeon. Experiments are now in progress in the surgical laboratory of Rush Medical College to determine the bactericidal power of iodin, and the results obtained will appear in a future communication.

THE ADMINISTRATION OF CALCIUM SALTS IN NEPHROLITHIASIS DUE TO URIC ACID CALCULI.

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THE UNDERLYING FACTS AND PRINCIPLES.

Phosphoric acid forms three salts with sodium, as follows:

H_3PO_4, phosphoric acid.
NaH_2PO_4, mono-sodium-phosphate.
Na_2HPO_4, di-sodium-phosphate.
Na_3PO_4, tri-sodium-phosphate.

The mono- and the di-sodium phosphate normally occur in the urine. Uric acid is readily soluble in di-sodium phosphate, but it is not soluble in mono-sodium phosphate. The addition, in fact, of mono-sodium phosphate to a solution of uric acid in di-sodium phosphate will cause the precipitation of the uric acid.

It is clear, therefore, that the solubility of uric acid in the urine is enhanced by the presence of di-sodium phosphate and that the tendency to the formation of uric acid concretions increases in proportion to the amount of mono-sodium phosphate that is excreted through the kidneys.

It is also clear that any endeavor directed toward preventing the precipitation of uric acid in the urinary passages must be concerned with increasing the amount of di-sodium phosphate and decreasing the amount of mono-sodium phosphate.

The ideal would be to cause the complete disappearance from the urine of mono-phosphate and at the same time to produce the elimination through the kidneys of a quantity of di-phosphate sufficiently large to hold all the uric acid excreted in solution.

This can be done in two ways, viz., either, *First*, by decreasing the phosphoric acid in the blood entering the kidneys, or *Second*, by increasing the sodium in this blood; for the smaller the proportion of available acid to available base the greater the tendency to the formation of basic salts.

First. The decrease of phosphoric acid in the renal blood. The phosphoric acid of the blood is derived from three sources. First, phosphoric acid in the form of phosphates is ingested with the food. Second, phosphorus is contained in all albumins (chiefly the nucleins of the food); the oxidation processes going on in the organism convert this phosphorus into phosphoric acid. Third, phosphoric acid is similarly derived from the albumins (nucleins) of our own tissues. The phosphoric acid formed in the body is consequently derived both from the disassimilation of the food proteins and the catabolism of the proper tissues of the body.

The first two sources of phosphoric acid we can control directly by eliminating from the diet pabulum containing much phosphorus, as nuclein-containing foods, e. g., internal organs, young germinating plants, etc. (By limiting the ingestion of nuclein-containing foods we at the same time eliminate the chief source of uric acid.)

The third source of phosphoric acid we can only control indirectly, i. e., by removing from the blood and tissues, through other channels than the kidneys, the phosphoric acid that must inevitably be formed from the degradation of our own tissues.

Both the direct and indirect regulation of the phosphoric acid content of the blood can be achieved by the administration of calcium salts. For, in the first place, calcium forms insoluble salts with the alkaline phosphates contained in our normal food, and in this way prevents the absorption of this moiety into the blood. In the second place, calcium, owing to the great affinity it possesses for phosphoric acid, combines with the phosphoric acid encountered in the blood stream, and this proportion is subsequently eliminated in the form of calcium phosphate—not, however, through the kidneys, but in great part through the intestine. This is an important point, for in contradistinction to sodium, potassium and magnesium, all elements that are chiefly eliminated through the kidneys, calcium is principally (85 to 95 per cent.) eliminated through the bowel.

It will be seen, therefore, that calcium given by mouth can, first, prevent the entrance of preformed phosphoric acid (phosphates) from the food into the blood, and can, secondly, prevent the phosphoric acid formed in the organism from passing into the urine by causing its elimination through the intestine.

Second. The increase of the sodium in the renal blood. This object can be accomplished by the administration of sodium salts by mouth; but this is bad practice. It is dangerous for various reasons to render the urine continuously alkaline. And this occurs if doses of sodium salts are exhibited large enough to convert all the mono-phosphate of the urine into di-phosphate. Normal urine is faintly acid, and it should be kept so. Calcium salts given in very large doses never render the urine alkaline.

Whereas, therefore, the administration of large doses of sodium salts for long periods of time may be indicated on theoretical grounds, it is counter-indicated on empirical grounds. First, because it renders the urine alkaline and thus favors the deposit of concretions other than uric acid stones; second, because it exercises a deleterious effect on gastric digestion; third, because it is not without effect on the corpuscular elements of the blood; fourth, because it is superfluous, as calcium salts by decreasing the phosphoric acid of the urine thereby cause a relative increase of the sodium (and of the sodium di-phosphate) without at the same time rendering the urine alkaline.

To summarize, therefore:

1. The uric acid of the urine is held in solution by di-sodium phosphate and is precipitated (salted out) by mono-sodium phosphate.

2. For the prevention of uratic calculi the increase of di-phosphate and the decrease of mono-phosphate is, therefore, a desideratum. This object can be accomplished either by decreasing the phosphoric acid or by increasing the sodium of the urine.

3. Calcium salts produce the desired effect by decreasing the excretion of phosphoric acid through the kidneys.

a By binding the preformed phosphates of the food and preventing their absorption.

b By binding the phosphates of the blood and causing their elimination through the bowel.

4. The administration of sodium salts that can also produce an increase of the di-phosphate and a corresponding decrease of the mono-phosphate is to be condemned, chiefly because sufficiently large doses render the urine permanently alkaline. And this deleterious effect is not produced by the exhibition of calcium salts.

DOSE AND ADMINISTRATION.

The best calcium preparation is the carbonate; this may be given in doses of fifteen to twenty grains three times a day. More may be given with impunity. Von Noorden advises as much as fifteen grams a day, and claims never to have seen any bad effects even after months of this treatment. It is necessary to individualize—the smallest efficient quantity of any drug is always the best dose. The urinary calcium, phosphorus and uric acid excretion should be determined in the beginning (the patient being on a fairly constant, nuclein-free diet) and the dosage regulated accordingly.

A more convenient form of administering calcium and one that is preferred by most patients, particularly if the treatment is to be carried out indefinitely, is to give calcium in the form of natural mineral waters or as an addition to some pure water. Among the better known European mineral waters Contrexéville, Wildungen and Fachingen contain the largest proportion of calcium salts. Among domestic waters the choice is difficult. The exploiters of the majority of them make such blatant and extravagant claims in regard to wonder cures that it is not safe to place any reliance on this essentially commercial propaganda. Personally, I prefer adding the necessary amount of calcium salt or lime water to some pure water; for the "curative" value of most natural and artificial mineral waters depends more on the water than on the salts they incorporate. Abundant water drinking is in itself indicated in urolithiasis, as any dilution of the urine must needs counteract the tendency to urate concretions. That the diet should in addition be so regulated as to lead to the smallest possible excretion of uric acid need hardly be emphasized.[1]

THE DIAGNOSIS OF URIC ACID CALCULI.

It is important to determine that the calculi or the "gravel" passed are really composed of uric acid or urates and not of other possible substances. The following method is rapid and easy of execution.

The concretions are finely powdered. A portion is treated with dilute cold hydrochloric acid in a test tube; if effervescence occurs the concretion contains carbonates, and if it dissolves it is not a uric acid stone. If

1. See my article on "The Modern Basis of Dietetic Treatment in the Uric Acid Diathesis," N. Y. Med. Jour., Nov. 1, 1902.

nothing or only very little of the material goes into solution, the residue is treated with a large quantity of warm dilute HCl. Any residue is presumably uric acid for the sulphates and oxalates of lime, the phosphates, cystin and xanthin all go into solution. The residue is filtered off, dried and heated on a piece of platinum foil; a distinct odor of bitter almonds (HCN) speaks for uric acid. Finally, the murexid test may be performed as follows, in order to render the diagnosis certain. A small quantity of the material is dissolved in nitric acid and a few drops of the solution evaporated in a porcelain dish; the residue should be red—it should turn purple when touched with a drop of ammonia, and reddish-blue with a drop of potassium- or sodium-hydrate.

RESULTS.

I report four cases; they present no clinical features of sufficient intrinsic interest to merit chronicling in detail. The only noticeable fact is that all four were advised by me several years ago to use calcium salts continuously; that all four were lost sight of for periods varying from two and a half to four years, and that all four recently again came under observation for other causes without having suffered a recurrence of their attacks of renal colic during the whole intervening time. Several other cases I have lost track of, but hope to rediscover.

Von Noorden, who first advocated the use of calcium salts in nephrolithiasis, reports only two occurrences of renal colic among twenty-one cases; in one patient an attack occurred a few days after beginning the treatment; in another patient who had suffered from severe attacks every few weeks, an attack developed nine months after the treatment was begun, and not again thereafter.

The good results obtained in my four cases and the statistics of Von Noorden lead me to believe that the treatment of uratic nephrolithiasis by the continuous exhibition of calcium salts is efficacious and deserving of extended trial.

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GLIOMA RETINÆ WITH REPORT OF FIVE CASES.*

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Glioma is a disease limited to childhood, and we may consider it the only true neoplasm developing in the retina. Its synonyms are: "Neuro-epithelioma" (Wintersteiner), "gliosarcoma" (Virchow), "glio-angiosarcoma" and "tubular gliosarcoma" (De Gama Pinto).

H. Knapp, in 1867, appears to have been the first to give an accurate and thoroughly scientific description of this class of tumors. In 1868 appeared Hirschberg's classical work on this subject, with a report of 77 cases collected from different sources. Virchow believed the cells of this class of tumors to be derived from the supporting fibers of the retina (the glia), and hence gave it the name of glioma retinæ.

Iwanhoff, in 1869, described the structure of the glioma as follows: "The larger nodules are always very vascular, with a characteristic arrangement of the cells which are concentrically grouped around the blood vessels. On section the whole nodule appears to consist of closely arranged cell rings whose central spaces are filled with red blood corpuscles."

Wintersteiner has tabulated 500 cases from all sources, 31 of these being his own, which had been very thoroughly studied microscopically. The same author has tabulated the following cases, in which the origin of the gliomatous growth could positively be traced to one or more of the retinal layers with the following results:

(a)	Origin in layer of optic nerve fibers	5 cases
	Origin in inner nuclear layer	19 cases
	Origin in any of the inner layers of retina	12 cases
	Total	36 cases
(b)	Origin in outer nuclear layer	9 cases
	Origin in outer layers of retina	3 cases
	Total	12 cases

From this we will observe that the origin is three times more frequent in the inner than in the outer layers. We must remember that the origin is not limited to one layer of the retina, but may spring from several layers in the same case. It has been observed that gliomata have their origin four times more frequently from the posterior than from the anterior half of the globe. The same author accepts Cohnheim's theory that tumors have their origin in the masses of embryonic cells which are at times left over in the building of the normal structure, these cells remaining dormant in their embryonic state until at some later period they may take on an active and perverted growth. Prof. Schöbl, who has observed a very large number of this class of tumors, concludes that glioma may start from the supporting fibers of any of the layers of the retina, but mostly from the inner nuclear layer. In this layer Da Gama Pinto found that the nuclei were mostly in process of division with karyokinetic figures. That glioma is a form of tumor independent of and different from sarcoma, was first doubted by Cornil and Ranvier; later they were termed small round-celled sarcomata by Delafield, and Nagel agreed in this opinion. From Virchow's standpoint the supporting tissue of the retina can not be considered identical with common connective tissue, and from the standpoint of Klebs the gliomata are derived even from a different germinal layer than that from which the sarcomata arise. The clinical picture of glioma also is so well defined that to confound it with sarcoma is against good judgment.

Becker thinks that there is a sufficient number of mesoderm cells in the blood cells to give rise to sarcomata. To this it must be answered that their origin from the granules of the nuclear layer directly, especially of the inner one, can be observed, and that processes of division can be seen there, as Da Gama Pinto, Schöbl and others have witnessed, and that not a single observer has found a glioma starting from a retinal blood vessel, while with sarcomata this is nothing rare.

The most frequent mixed tumor of this kind is gliosarcoma (Virchow). When spreading into the choroid and sclera and beyond the eye, gliomata may sometimes change their character in that their cells grow larger, up to 15 microns, while their nuclei remain comparatively small—6 to 10 microns; that is, the protoplasm is increased, or, in other words, the cells assume the character of small round-celled sarcoma. Berthold was the first who asserted that gliomata may assume a sarcomatous character, after having spread into the choroid, and that this membrane, irritated by the entering of the glioma cells, furnishes the sarcomatous elements. In a reverse way it may occur that sarcomata of the choroid take on a gliomatous character. This, perhaps, explains Von Graefe's two observations of gliomas in adults.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee: Drs. Frank Allport, H. V. Würdemann and J. A. Lippincott.

Prof. Schöbl's remarkable case of glio-fibro-sarco-myo-angioma confirms the statement that the character of the tumor often depends on whether or not it has invaded other tissues. In this case, the pure retinal glioma, when it spread into the sclera, produced proliferation with the formation of glio-fibroma; when the glioma cells spread into the orbital tissue they caused a proliferation in this locality, and sarcomatous (round and later spindle) cells were formed; and thus a glio-fibro-sarcoma resulted. The same process was repeated with the unstriped muscular tissue of the blood vessels, and thus the tumor formed a glio-fibro-sarco-myo-angioma.

Greef has examined fresh gliomata by the impregnation methods of Golgi and Cajal. By the latter method he succeeded in demonstrating the presence of differently shaped cells in retinal glioma. He found numerous oval and star-shaped cells with free offshoots which were undoubtedly true neuroglia cells and the original cells of the tumor. From Greef's investigations, it appears certain that gliomata are not neoplasms of sarcomatous nature, since impregnation of the cells after Cajal's method could not take place. It is believed by some authors that neuro-epithelioma of the retina is always congenital, or at least that a predisposition exists through some disturbance in the process of development.

Glioma spreads in the retinal structure: 1, by enlargement of a single or the confluence of several smaller nodules, and 2, by metastasis within the retina.

The growth of the primary nodules takes place through division and multiplication of the cells next to the blood-vessels, whereby the older cells are constantly crowded farther back toward the periphery and become necrotic for want of nutrition.

The growth spreads in three ways: 1, through the inter-lamellar spaces; 2, through the lymph channels, and 3, through the blood-vessels.

It is characteristic of the development of glioma that the growth not alone displaces other structures by pressure but replaces them by neoplastic tissue. With the destruction and transformation of the retina by the rapidly developing gliomatous tissue come retinal detachment and an extension of the process to other structures, the choroid being generally and naturally the first to be involved. Beyond the retina and the choroid the extension of the neuro-epithelioma takes place most readily along the optic nerve, the cancer tissue replacing the nerve bundles and finally extending to and involving the chiasm and surrounding structures. Secondary tumors have been found in nearly all of the organs and even the bony structures are frequently involved.

In the second and third stages the growth replaces the orbital tissue, extending to and destroying the periosteum and bone by erosion.

The diagnosis between gliomata and other tumors is easily made, but the differentiation of the pseudo-glioma is fraught with many difficulties, but only when the disease is well advanced. We must differentiate from: 1, detachment or cysts of the retina; 2, tumors of the choroid and ciliary region; 3, masses of inflammatory exudate in the vitreous (pseudo-glioma), and 4, the combination of true glioma with any of the above.

The greatest difficulty in making a correct diagnosis occurs when the cornea, aqueous or lens have undergone such changes as to prevent inspection of the interior of the globe, cataract being the most frequent condition encountered. As a rule, we may state that inflammatory exudates into the vitreous give a yellowish reflex, with a metallic luster and smooth surface, while the color of glioma may be a light yellow, reddish or greenish-yellow and the growth is nodular.

The diagnosis may be complicated further by the formation of a post-inflammatory membrane or exudate upon the hyaloid membrane directly behind the lens, by chronic inflammation and fibrinous exudate into the vitreous, or by acute suppurative hyalitis. From detachment of the retina it should be readily differentiated by a careful ophthalmoscopic examination, and from tumors of the choroid by the fact that they are nearly all pigmented. Leucosarcoma of the choroid is rare and its growth is dissimilar to that of gliomata. It develops as a solitary half-round mass over which the retina may be atrophied, but does not form reduplications and thickened masses.

That there is often great difficulty in making a differential diagnosis between the true and the pseudo-glioma, is proved by the fact that Raab found in the collection of Otto Becker of Heidelberg twenty eyes that had been enucleated by various expert diagnosticians, after the diagnosis of glioma retinæ had been made, and yet in 25 per cent. of these no gliomatous or cancerous tissue was present, but only inflammatory changes in the uveal tract. Treacher-Collins reports that out of 1020 eyes removed in Moorfield Hospital, London, from 1888 to 1892, the diagnosis of glioma had been made in 24 cases, and yet microscopic examination revealed that 7 of these were pseudo-glioma.

Fortunately, neuro-epithelioma of the retina is rare. Even in the largest clinics, six months to a year may pass without a child with glioma being presented. Twenty-two of the great clinics of the world reporting 498,057 patients, record 203 cases of glioma—one twenty-fifth of 1 per cent.—or one case of glioma out of every 2500 cases of diseases of the eye. But after reading the reports of Raab and Treacher-Collins, mentioned above, we are justified in concluding that no doubt many of these were cases of pseudo-glioma.

The disease is absolutely limited to childhood and is often well advanced at birth. The combined results of investigation by leading oculists of the world seem to prove conclusively that when glioma is reported as a primary growth in an individual over 16 years of age it is a mistaken diagnosis. Out of 467 cases, the growth was developed at birth in 34 cases to such an extent as to present the amaurotic cat's eye. Ophthalmoscopic examination would have shown a much larger number. Including these congenital cases, there developed during the first three years of life, 314 out of a total of 467 cases, or 67 per cent.

The percentage of involvement of both eyes is very large; out of 87 cases it occurred 16 times at birth, or in 18.4 per cent. Deducting these congenital cases from the 87 cases, it was found that both eyes were involved 65 times out of 71 cases during the first three years of life.

It is of interest to remember that the second eye appears never to have been found to become involved by an extension of the disease along the optic nerve and through the chiasm from the first eye. Where both eyes are affected, the disease always develops independently in each eye.

The disease may extend backward along the optic nerve to the chiasm, involving adjacent structures and causing death, but it has not been known to travel from the chiasm peripherally along the nerve of the sound eye; blindness of the non-affected eye due to atrophy may, however, result because of the destruction of the nerve fibers in the chiasm.

The influence of heredity has not been demonstrated; as yet we know of no case in which an individual who had an eye removed in childhood for glioma, has transmitted the disease to his offspring. There are, however, many cases on record where several members of one family have been affected, just as at times we find congenital cataract in some or all of the children of one family, where the parents are closely related. I have been unable to find whether there was consanguinity between the parents of the patients about to be cited.

Lerche, St. Petersburg, 1821, observed a family of 7 children, 4 of whom died from glioma; Sichel, in 1852, 4 cases in one family; Calderini, in 1867, 3 cases in one family; Knapp and Thompson, in 1874, 5 cases in one family; MacGregor, in 1885, 3 cases in one family, and Flexner, in 1871, 3 cases in one family. Wilson, in 1872, exhibited before the Pathological Society of Dublin, the photographs of 8 children of one family, four of whom had died from glioma and the remaining four being also afflicted with the same disease.

The disease may be divided into three stages of development:

1. Period of intra-ocular growth, without increased tension or inflammatory symptoms.
2. Glaucomatous or inflammatory period, which ends with rupture of the globe.
3. The period of extra-ocular growth and metastasis.

In some cases there is temporary arrest and even retrograde change, such as phthisis bulbi after rupture or violent inflammatory reaction of the globe, the temporary arrest being probably due to destruction of the vessels of nutrition with degeneration of the glioma cells as a result of the suppurative process.

Death may result from:

1. Involvement of the brain.
2. Cachexia.
3. Pressure of the growth on the medulla oblongata.
4. Suffocation from extension of growth into the pharynx and larynx.
5. Pyemia or septicemia, with metastatic abscesses.

The duration of life when there is no surgical interference varies greatly, but from a few months to three years is the average. A few cases have been reported where the first period lasted five years from the time the disease was first discovered. The average duration of the second stage is from 2 to 21 months, while the third stage from the rupture of the cornea to the fatal termination is the shortest, varying from two weeks to one year, with an average of three months.

If there is no return in two years after enucleation the case may be regarded as cured so far as that side is concerned, but we must remember that the disease may occur in the other eye a considerable period after the first eye becomes affected, and we must then regard it as an independent attack in the same patient and not a recurrence of the primary growth.

The only treatment that can be considered as offering any chance of saving life is removal of the affected eye, with as much as possible of the optic nerve, at the earliest possible moment during the first stage. In operations undertaken during the second stage, before the rupture of the cornea, the chances of success are very slight, since the infection has often extended outside of the globe through the veins or lymph channels. But even then it is our duty to operate, and exenteration of the orbit should be added to the enucleation of the eye, if we hope to arrest the disease. In this stage I regard the use of pastes far superior to the use of cutting instruments, because the liability of opening up new avenues of infection is much greater in the latter method.

When the case has once entered the third stage the rule is that, no matter how thoroughly exenteration is performed, there is always recurrence within a few weeks, and operation in this stage is only justifiable in order to afford temporary relief.

With the advent of serum-therapy it was hoped that this mode of treatment might be of service, and Nieden reported his observations upon this method at the meeting of the Ophthalmological Society at Heidelberg in 1896. The cancer serum was injected in a case of recurrent glioma. At first there appeared to be an arrest of the growth, but it soon broke forth with greater fury than before, and went on speedily to a fatal termination.

Shall we advise enucleation if both eyes are affected? Since cases of undoubted glioma—as proved by the microscope—have been cured after double enucleation, and as the disease springs from a separate and independent focus in each eye, we should answer this question in the affirmative, and urge the operation if the disease has not progressed beyond the first or second stage in either eye. For if life is saved, blindness to a child at this period is not a barrier to its acquiring an education and becoming a useful and independent citizen.

CASE 1.—Baby M., female, white, aged 2 years, was first seen by me Feb. 7, 1894. Child was well-nourished and its general health good. Left eye normal; right pupil dilated, which caused the mother to seek consultation. External appearance of globe normal. The pupil appeared the normal black color. Tension normal. Ophthalmoscopic examination revealed that the dioptric media was clear, but there was a flat, yellowish, nodular mass to the outer side of disc; retina was intact outside of the affected area. A diagnosis of glioma retinæ was made, immediate enucleation advised, and the danger of delay fully explained to the mother. The family physician was informed of my opinion. He examined the eye superficially and said he could see nothing wrong, advised against the operation, and gave the mother little sugar-pills for the child.

May 3, nearly three months later, the mother returned with the child. It was emaciated, exhausted and fretful, frequently crying out in pain. The case was now well advanced into the second stage. Globe injected, tension +2, anterior chamber obliterated, pupillary area filled with a yellowish mass, slightly irregular, with a few fine vessels seen upon the surface. The family physician had now withdrawn his objection to operation. Left eye was still normal.

In order to give the child its only chance, and to relieve the suffering caused by the glaucomatous eye, I enucleated the globe and also removed a considerable piece of the optic nerve. Under similar conditions I should now make exenteration of the orbit. The operation was followed by marked improvement in the child's general condition, but on October 8, about five months after the operation, the mother returned with the child stating that it had vomited frequently during the previous week. Its appetite was poor, but it slept well. No other general symptoms were present. The orbital cavity was filled with a hard mass which did not appear to be attached to the bony walls, but was movable; the new growth appeared to spring from the optic nerve-end, which formed its pedicle. The tumor was removed to the very apex of the orbit and, as surmised, it sprang from that part of the optic nerve which had not been removed at the first operation. As I considered the case beyond hope, I did not wish to cause the child additional and useless suffering by the use of cautery or pastes.

The growth promptly recurred and soon developed into a large protruding mass. The child suffered most terrible agonies unless kept under the influence of opiates, 1½ grs. of morphia being administered hypodermatically every 4 or 6 hours.

The child died on Feb. 26, 1895. (Figs. 1 and 2 are sketches made after death, showing the appearance of the growth.)

Postmortem Notes.—Child greatly emaciated. Tumor 12 inches in circumference at the base, projecting from the right orbit about 4 inches. In shape, the tumor had much the appearance of a small cocoanut, and it was of a dark reddish color. The projecting surface was broken down in places and covered with nodules. The growth involved the bony structure and extended from the roots of the hair almost to the alveolar process. The meninges at the base of the right side and a portion of the brain, together with the optic nerve, were extensively invaded by the cancerous tissue which was partly ne-

Fig. 1.—Case 1. Recurrent growth one year after neoplasm was first discovered ophthalmoscopically. Nine months after enucleation and five months after removing recurrent growth and all of optic nerve to apex of orbit.

crotic. The meninges and brain of the left side, together with the left eye, appeared normal.

Microscopic Report of Globe.—Dr. Louis Stricker reports as follows: Unfortunately, the eye was cut through the equatorial region; hence, no complete sections of the entire globe could be made. Both halves were filled with a new growth, showing on its surface minute red spots—large ves-

Fig. 2.—Side view of Fig. 1.

sels—and around these areas of a greenish color, whereas, at a distance from these the surface was white. The general contour of the globe was retained and at no point had the tumor perforated the sclera. The optic nerve, especially its nasal half, showed decided thickening. The anterior half of the globe was also filled with the tumor mass, and entirely hid from view the lens and ciliary body.

The specimen was carefully hardened in Mueller's fluid for 5 months, then washed out and gradually hardened in alcohol, finally imbedded in celloidin, and then cut in sections.

Without the use of a lens, the sections disclose that the optic nerve is infiltrated with the tumor up to the point of excision, necessarily having left behind some part of the new growth.

A general view of a section of the globe discloses a complete obliteration of the retina, not a vestige of its anatomic structure remaining, except here and there a few retinal pigment cells—a most widespread involvement of the choroid, which in many places is thickened to many times its normal size, and likewise, a complete involvement of the optic nerve, with total obliteration of nerve fibers.

All the sections disclosed a very marked involvement of the choroid. Anteriorly, for a very short distance, the choroid was found normal, but as it was followed around toward the optic nerve, its involvement in the tumor mass at once became apparent, and nodules begin to appear, until large areas are encountered completely infiltrated with round cells containing large nuclei. The stroma pigment cells of the choroid have entirely disappeared, but the vitreous lamella is in many places sharply outlined, giving the line of separation from the retina. In some places, however, the vitreous lamella has been eroded, and thus a point either of entrance or exit has been given for the tumor to invade this space between the choroid and the retinal layer of pigment cells which here and there exist and act as a barrier to invasion. At one point in the tumor the continuity of this vitreous lamella is broken, and here a distinct point of communication between choroid and interior of globe exists. In one section was found an enormous vessel extending directly from the choroid out into the tumor mass. The retinal detachment extended as far as the ora serrata, at this point the cystic degenerated retina can be followed forward for a short space, to be entirely obliterated in lobules of tumor.

The portions of the tumor confined strictly to the choroid are made up of round cells, which take the stain deeply, and to an equal degree, and though this is permeated by blood-vessels, they do not seem particularly more numerous or larger than usually encountered in the normal choroid. As soon, however, as the tumor is followed beyond the strict confines of the choroid, the vessels are much more numerous, widely dilated, some more than twice the size of the normal arteria centralis retinæ, and filled with blood cells. Around each one of the vessels the round cells of the tumor are closely pressed together, so that they often take on a polyhedral shape. They take the stain very deeply, whereas, at a distance, much less so, so that the tumor has a peculiar spotted or lobulated appearance. Nowhere did I find places where the tumor cells formed the walls of the vessels, but everywhere there are large vessels with thickened and distinctive vessel walls, showing the endothelial cells lining the vessel wall, the intima of the vessel, and around these grouped the cells of the tumor.

The choroid is distinctly and sharply demarcated from the optic nerve by connective tissue fibers. The fibers of the lamina cribrosa are especially sharply defined and pushed backward by the tumor, which has encroached on the nerve head, and finally invaded and thoroughly destroyed its fibers. Nevertheless, the line of demarcation between the choroid and nerve head is very sharply defined. The optic nerve itself is greatly thickened, its nerve fibers being entirely obliterated by the extreme infiltration. Both artery and vein intensely dilated and filled with blood cells. To the side of the artery this tissue is one mass of round cells, and all along the nerve sheath are new-formed and widely dilated blood-vessels. The lymph space is obliterated, due in part to the infiltration and swelling of the nerve and in part to the infiltration of the arachnoidal sheath and space, and also of the dural sheath (Figs. 3 and 4). The side nearest the vein is likewise infiltrated with round cells, as is also its dural sheath. These conditions exist to the very end of the nerve. In some of the sections the arteria centralis retinæ can be followed outward directly into the tumor mass, leaving no doubt that many of the large vessels permeating the tumor take their origin from the large central vessels.

The retina has been partly destroyed.

The sections of the anterior half of the globe (Fig. 5) show the retina detached to the ora serrata, from which point it was pushed anteriorly toward the lens, from both sides coming up close to the lens and then going backward toward the nerve head—a typical, total, umbrella detachment. In the triangular space between the lens and receding retinal framework are the connective tissue fibers of the vitreous. All the anterior sections of the choroid show this to be infiltrated. The ciliary body and its processes are atrophied, doubtless from pressure, and they likewise show slight infiltration.

The lens has not been affected and is perfectly normal, although the tumor mass with large blood-vessels is pressed

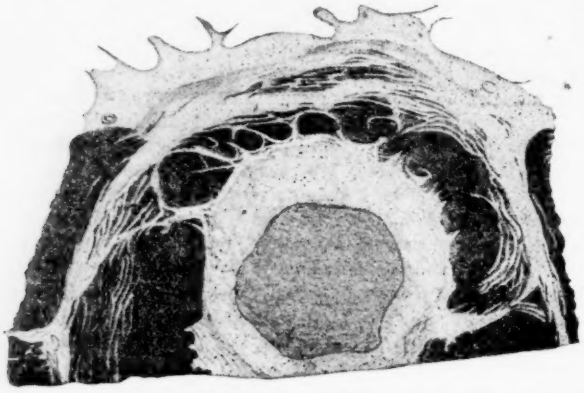

Fig. 3.—Section of optic nerve. The nerve fibers totally destroyed; also notice enormous thickening of the inner sheath, and infiltration of the subdural and subarachnoidal spaces with the tumor mass. (After Wintersteiner.)

up against its posterior surface. The lens shows the peculiar bulged edges always found in cases of tumor in the eyeball. On one side the tumor cells have worked their way through Petit's canal into the posterior chamber and forced the iris forward on that side, so as to produce a wide curvature, and a deepening of the posterior chamber. Some of the cells have found their way into the filtrating angle of the anterior chamber, which is not occluded.

The iris is atrophic, and near its insertion shows some widely dilated vessels. The cornea is normal. The sclera

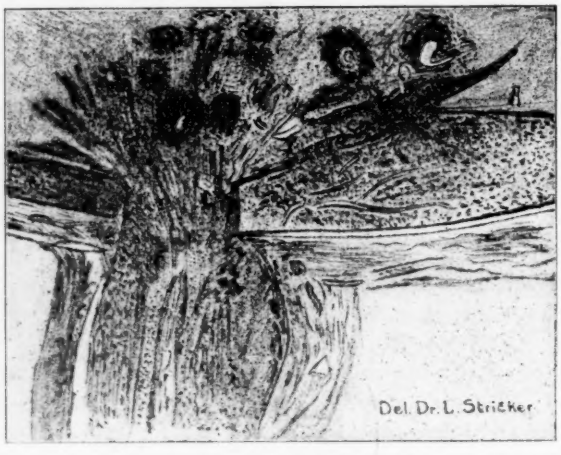

Fig. 4.—Case 1.—Showing new growth and infiltration of optic nerve.

is attenuated owing to long intra-ocular pressure. Posteriorly, near the optic nerve entrance, it is traversed by vessels showing a large increase of nuclei in their vicinity.

This tumor is exceedingly vascular, the large size of the vessels being a prominent factor. Part of the tumor seems to be strictly confined to the choroid, and by a pedicle extends inward into the vitreous space, which is completely filled by the tumor mass. The large mass occupying the vitreous space has a characteristic appearance on section of deeply-stained portions around the vessels, and is less stained at more remote points, this being a result of removal of portions of the tumor from nutrition derived from the vessels. The growth of the tumor is likewise dependent on the growth of the vessels, around which the cells of the tumor arrange themselves, thus producing the alveolar or tubular form of tumor. The cells forming the tumor are all of the round-celled, non-pigmented variety.

The entire retina has been obliterated, save the cystic framework close to the ora serrata. That which originally—taking into consideration the age of the patient, 3 years—may have been a glioma, on spreading to the choroid—either by continuity of tissue or by direct introduction of cells of the tumor through the venous circulation—aroused this to excessive cellular activity, and so introduced the sarcomatous element which has completely masked the original picture, thus producing the glio-sarcoma of Virchow.

From this report the question might arise, whether or not this was a case of glioma, but the age of the patient, the rapidity of the growth, and above all, the early clinical picture, leave not the slightest doubt that the tumor primarily was a glioma, eventually assuming the sarcomatous type.*

Dr. H. J. Whitacre reported as follows upon the recurrent growth springing from the optic nerve: The structure is that of small round cells in definite connection with a fibrous intercellular substance. The blood vessels are poorly formed and pigment granules are

Fig. 5.—Section from anterior half of the globe, showing detached retina, atrophy of ciliary body and new growth pressing on the posterior surface of lens, which had remained perfectly transparent.

found in many parts. The tumor is a small round-celled sarcoma.

CASE 2.—Baby R. E., aged 5 months, was brought to me Dec. 29, 1897. The child was well developed and nourished. Three weeks ago the parents noticed that the pupil of the right eye was dilated, and had a "silvery appearance which made the eye look dull." Dr. W. F. Shepherd was consulted, and promptly referred the case for consultation. The globe was congested; T.=+I; cornea clear; anterior chamber obliterated; lens and iris in contact with cornea; pupillary space filled with a mass of a reddish gray color, the surface being unusually vascular, the disease having advanced to the second stage. The appearance of the growth when examined under a strong light, gives a peculiar reflex not unlike a fire opal. Ophthalmoscopic examination of the left eye under mydriasis was negative. The child was admitted to my hospital; the same day enucleation with extensive resection of the optic nerve performed, and the specimen given to Dr. H. J. Whitacre for microscopic examination. The following is his report:

The specimen received was a complete right eye, which was placed in a 4 per cent. solution of formol for four days, and the hardening completed in 95 per cent. alcohol.

* The report, however, shows how very important it is to pull the globe well forward when enucleating, and to cut the nerve at the very apex of the orbit so that if possible, we may extend beyond that part of the nerve which may be infiltrated with cancer cells. In this case I resected the nerve far back, but the disease had extended further. Still, by subjecting the nerve to extra stretching, I might have secured more.

A sagittal section of the hardened specimen presented the appearance shown by the photograph (Fig. 6), and demonstrates a globular tumor occupying mainly the temporal half of the vitreous chamber. Posteriorly, the nasal half shows a pedicle attached to the point of entrance of the optic nerve. Anteriorly, the tumor presses against the posterior surface of the lens, and on each side of the detached retina can be seen a thin membrane extending from the tumor to the choroid.

The tumor, when half hardened, was very soft, and must have been almost gelatinous in its fresh state. Sections of the tumor were made with difficulty because of the multiple

Fig. 6.—Case 2. Right eye, removed first. No recurrence three years and eight months afterwards.

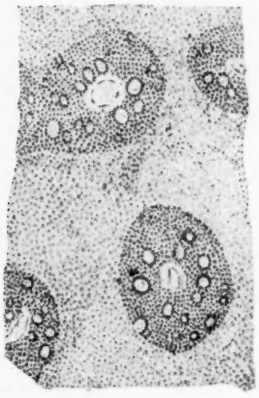

Fig. 7.—Neuroepithelial nests or "rosettes" surrounding a central blood vessel. (After Wintersteiner.)

points of calcareous degeneration which dulled the knife and tore the sections. In general arrangement the tumor is made up of bands and circles of cells arranged regularly about the central opening (Fig. 7). The appearance is that of a vascular tumor with the cells concentrically arranged around the central vessel.

By higher magnification the lumen of this central vessel looks like the acinus of a gland surrounded by high columnar

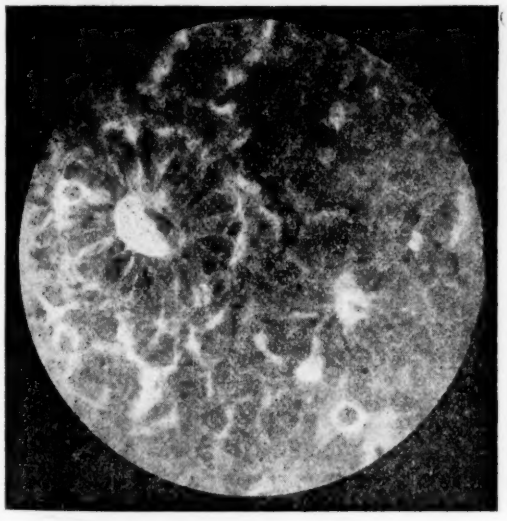

Fig. 8.—Photomicrograph showing the cells concentrically arranged around central vessels, forming "rosettes."

cells (Fig. 8); the other cells of the area have similar characteristics because of their origin by proliferation from these central cells. These central openings may be either lymph or blood-vessels, and it would be difficult to say which they are. Yet it would seem that they are blood-vessels because of the presence of blood cells within their lumen.

In Fig. 9 is shown a section of the optic nerve removed with the globe.

The manner in which the glioma developed from the inner-nuclear layer is beautifully demonstrated in Fig. 10, taken from Case 2; and also shown in Fig. 11, copied from Wintersteiner; the relative size and location of this nodule is shown in Fig. 12. In this illustration we see three distinct gliomatous nodules in the totally detached retina; the one shown in Fig. 11 is seen as a minute pin-head swelling near the posterior surface of the lens. The second growth is in the upper and posterior

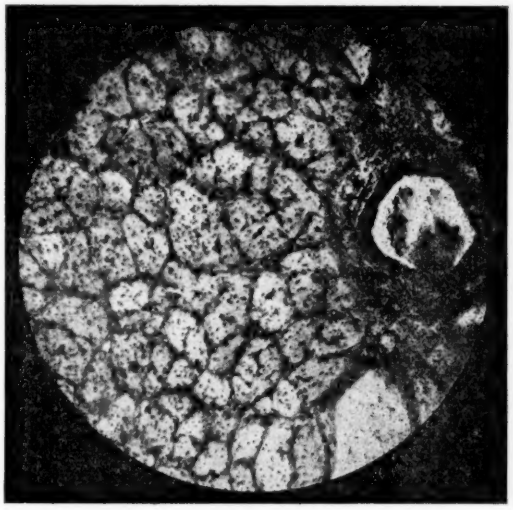

Fig. 9.—Case 2. Section of right optic nerve, removed with the globe. Nerve is normal, and there was no recurrence.

portion, in shape resembling the lens, but smaller. While nearly the whole lower half of the vitreous chamber is filled with the third nodule.

Re-examination.—April 26, 1898. The patient was re-examined and the following note is found in the record: "Right orbital cavity has healed perfectly; no evidence whatever of any return of the growth. Left Eye—Pupil, tension and general appearance, normal. Ophthalmoscopic examination negative." In January, 1900, I sent a communication to the

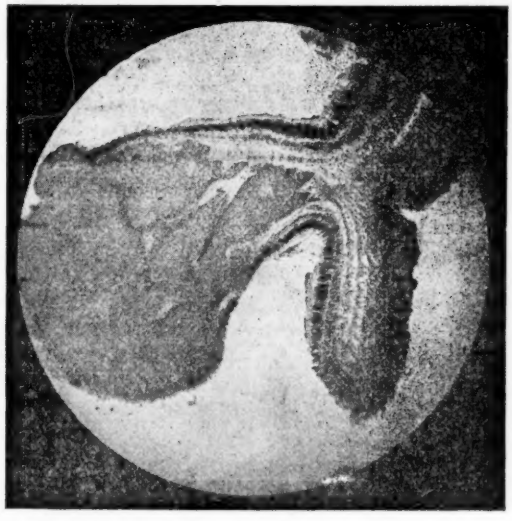

Fig. 10.—Glioma from right eye of Case 2, showing how the new growth sprang from the inner nuclear layer of retina.

parents asking if the child was still living and if so to bring it to the office, which they did February 7. Child in excellent physical condition; the right orbit from which the eye had been removed 2 years and 2 months before, was in perfect condition, the conjunctival sac smooth and pale. The left eye appeared normal; the pupil was dilated with a mydriatic, a careful ophthalmoscopic examination made, and the fundus found normal.

On March 7 the mother returned, bringing another child who had complained of its eyes, as she feared that a similar growth

might be developed in this child; this, however, proved not to be the case. I made another examination of the baby which she had brought with her and found to my great surprise that there was a small, whitish-yellow, irregular patch, appearing as a slight thickening of the retina, its edges not being sharply defined. It had an area of about one-half the diameter of the disc and was located outwards from the same about two diameters. The mother was told to bring the child again in one week, when it was found that the infiltration had

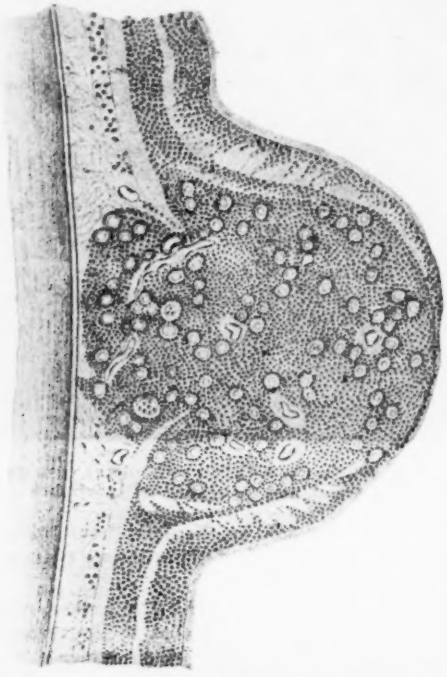

Fig. 11.—Miliary nodule (glioma) springing from the inner nuclear layer of retina, its location beautifully shown in Fig. 12, where a portion of the retina has been pressed against the posterior surface of the lens, the magnified growth shown here appearing as a minute nodule. (After Wintersteiner.)

spread, and near it could be detected a small fresh area of a similar nature.

There could now be no doubt about the diagnosis. The mother was informed that the eye was affected and was requested to return March 21 and bring the father, which she did. The areas of infiltration had increased both in area and thickness, and the parents were informed of the true

Fig. 12.—Section of globe, showing three gliomatous nodules in the totally detached retina, the third being very minute and seen near the posterior pole of the lens on which a part of the retina has been reflected. This nodule shown much magnified in Fig. 11. (After Wintersteiner.)

state of affairs. To save life enucleation was urged; that was refused, and the patient disappeared. Dr. S. C. Ayres was consulted and confirmed my diagnosis.

The child received no further professional attention till April 17, 1901, when the parents returned, asking that an operation be made, if only to relieve the sufferings of the child, as it now cried or moaned constantly, refused to eat, and was rapidly becoming emaciated. The globe was protruding and had ruptured (Fig. 13). The child was readmitted to the hospital the same day and under chloroform, exenteration of the orbit was performed solely to afford temporary relief from pain. The growth filled the orbit, the optic nerve having become enlarged so that its diameter was almost equal to that of the globe (Figs. 14 and 15). Caustics were not applied on account of the hopelessness of the case.

In three days the child had again become playful and free from pain. June 3 the cavity had healed. The child has gained in flesh and is very bright and happy.

In a recent communication the family physician, Dr. Sheppard, states that in September the patient began to suffer again and was seized with convulsions, which gradually increased in frequency and severity and could be controlled only by the administration of chloroform. The pain was never a "marked feature." The child died Nov. 7, 1901. No autopsy could be obtained..

CASE 3.—H. M., aged 2 years, was brought to me by her parents for a final opinion. I found it to be a typical case of

Fig. 13.—Baby Edwards.—Right eye removed three years before this picture was taken. No recurrence, nor was there any sign of it at the time of death, about eight months later. The left eye protruding and globe ruptured from extension of growth, beginning primarily in this eye.

neuro-epithelioma retinæ of the left eye at the end of the first stage, and advised immediate enucleation. They then informed me that this coincided with the opinion given by Drs. Ayres and Sattler. The operation was performed by them, and with their permission I merely state the condition of the patient as I saw her, and also her present condition as ascertained by a letter from the father, under date of Feb. 6, 1901, wherein he states that the child is in excellent health and attending school. A recent examination by an oculist showed the right eye to be perfect, excepting that it required a glass for correcting a moderate error of refraction, the vision becoming normal.

It is now 9 years since the operation, and as failure to recur after two years means a cure for the operated side, and the present age of the child (11 years) brings it almost absolutely beyond the period of development, we may consider the child's life saved.

CASE 4.—L. L., aged 18 months, was examined Jan. 18, 1897. His parents and grand-parents are all living and well;

no history of cancer, tuberculosis or consanguinity. He had chicken-pox at the age of six months, but no other diseases. About a month previous, the mother first noticed a glistening appearance of the left eye, at first toward the inner part, but it spread quickly, involving almost the whole of the pupil. On bandaging up the well eye, the child acted as if blind, and tried to remove the bandage. He sleeps well, has not lost

Fig. 14.—Baby Edwards. Left eye, showing also enormous infiltration of optic nerve.

any in weight, and apparently suffers no pain. The mother has three children older and in perfect health and has had one still-born.

This case was referred to me by Dr. F. G. Stueber, Lima, Ohio, for an opinion as to the character of the growth. As this was a typical case of glioma retinæ, in the latter part of

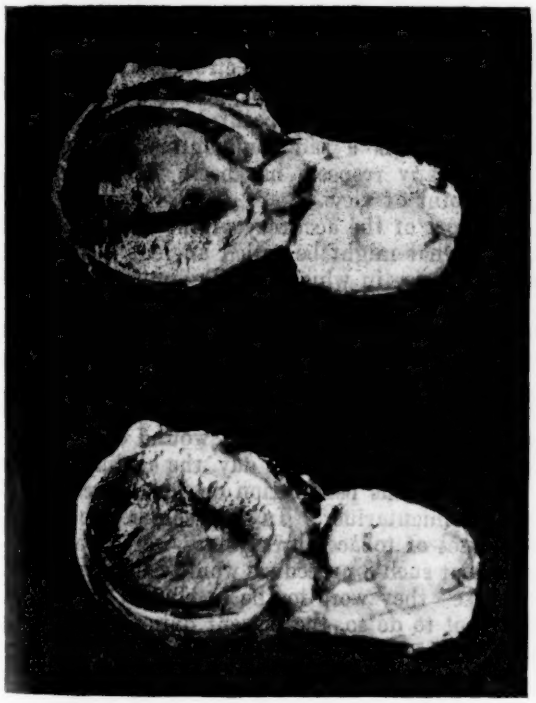

Fig. 15.—Baby Edwards. Section of left eye and portion of enormously infiltrated optic nerve. The lens was still clear.

the first stage, I could only confirm the Doctor's diagnosis, and urge, as he had done, the speedy removal of the eye, which was done Jan. 27, 1897, the examination after removal confirming the diagnosis. In answer to my letter of inquiry, sent Feb. 6, 1901, Dr. Stueber stated that the patient resided in an adjoining city. He last saw him June 25, 1897, when there was no evidence of return, and that he has since heard that he is still in perfect health.

In answer to a letter of inquiry, the mother answered, under date of Feb. 19, 1901, that the boy was in perfect health, with no evidence of a return of the growth, 4 years after the operation.

CASE 5.—H. W., aged 2 years. The following notes of this case I have taken from the record of my former associate, Dr. Joseph Aub: "About two weeks ago a yellowish-white reflex was first noticed in the right eye, which has been growing more perceptible daily, with deviation of the eye outwards. June 9, 1887.—The eye was examined to-day under chloroform. The entire inner and lower portion of the anterior half of the eye is taken up by a tumor, irregular in shape, and rich in blood vessels upon its surface. The entire outer half of the retina is detached; tension normal; deviation outwards well marked; no response to light. Dr. S. C. Ayres having been consulted, and agreeing in the diagnosis, assisted in the enucleation of the eye. Removed a liberal piece of optic nerve. Prompt healing."

I examined this patient in November, 1901, more than 14 years after the operation, and found the orbital cavity normal, both in size and appearance, and absolutely no asymmetry of the face, a point of interest in connection with the removal of the globe during infancy. The left eye was normal.

RESUME OF THE CASES.

Counting each eye as a case we have six operations. In speaking of a cure, I refer only to the operated eye.

Case 1.—Right. Third stage. Optic nerve affected beyond point of section. Recurrence and death.

Case 2.—Right. Beginning of second stage. Optic nerve normal beyond point of section. Three years and two months since operation. Cured.

Case 3.—Left. Beginning of third stage. Optic nerve affected beyond point of section. Recurrence and death.

Case 4.—Left. End of first stage. Nine years since operation. Cured.

Case 5.—Left. End of first stage. Four years since operation. Cured.

Case 6.—Right. End of first stage. Fourteen years since operation. Cured.

Three cases, or 50 per cent., were operated on during the first stage and all were cured; one case operated on in the second stage was cured. Two cases operated on in the third stage were fatal.

While the number of cases is very small, yet there can be no doubt that operations during the first stage with extensive resection of the optic nerve will give us a large percentage of recoveries for the operated side. We must also remember that in a great many of these cases the affection will involve the other eye sooner or later; by early removal of the second eye, however, the patient's life may be saved.

DISCUSSION.

DR. HERMAN KNAPP, New York—I had a case in which the eye was removed while still seeing. When I first saw the case the diagnosis was somewhat doubtful, but in three or four months I saw the case again, when the picture of glioma was very distinct and I advised enucleation. The mother consented, the operation was done without accident, and everything went on nicely, but the parents sued me for damages and gave me a great deal of trouble. I had to furnish proof that it was a glioma. I had the specimen and experts testified that it was cancer and that without operation death would have inevitably resulted. Then I had to prove that that specimen was the eye of the patient. Some of my colleagues had seen the patient before the operation and testified that it was his eye. Then I had to prove that this was the boy the witnesses had seen. Then they made the plea that the eye had been removed without knowledge of the parents, although it had been done with their consent, and some of the students who had been present at the examination testified to that fact. The question was raised of what

would have been the result if the boy had been let alone, and the experts all testified, inevitable death. Dr. Henry D. Noyes, as an expert, said that it was the unanimous verdict of the profession that no one with that disease can live without an operation and without an early operation. The judge asked Dr. Noyes: "Are you a friend of Dr. Knapp?" Dr. Noyes said: "We have been competitors in the same field of work, but we have always been on friendly terms." Then the judge said: "The case is clear; the Doctor did his duty: he sacrificed the limb to save life. The jury is dismissed."

DR. JOHN E. WEEKS, New York—I want to speak of one point: the involvement of mesoblastic tissue as these tumors advance. It is not unusual to find mingled with the cells that make up the glioma, cells that are distinctly of mesoblastic origin, so that the term glio-sarcoma is particularly applicable in these cases. Epitheliomata when they recur sometimes present the appearance of epitheliomatous tissue combined with sarcomatous tissue.

DR. S. C. AYRES, Cincinnati—In reference to one of the Doctor's cases, I am familiar with it and it is nine years now since the enucleation and she is in very good health.

DR. A. R. BAKER, Cleveland—Just a word in regard to the difficulties of diagnosis. I enucleated an eye two or three weeks ago in which I had diagnosed glioma and in which several local oculists made the same diagnosis and yet the pathologist says he does not think it is glioma. A few years since we had another case in Cleveland in which we made a diagnosis of glioma and enucleated the eye and when the pathologist opened it up it was a mere cyst with a very thin wall. The only other case in which I have diagnosed glioma was one I met in my first year of practice, in which I enucleated and the child died subsequently from recurrence.

DR. EDWARD JACKSON, Denver—Within a year I have seen and studied, ophthalmoscopically, an eye, regarding which, had it been in a child, I would certainly have made a diagnosis of glioma. It is a blind eye, in a woman nearly forty. It has been blind for many years. I think it is probably of the nature of a case reported by Dr. de Schweinitz last year at the American Ophthalmological Society, in which he enucleated the eye. There was a greatly thickened, degenerated, partially cystic retina. In my case there was a clear vitreous, and the retina markedly thickened and of irregular surface. Without the history of blindness for many years, and the patient being an adult, I think one would be justified in making a diagnosis of glioma.

DR. LUCIEN HOWE, Buffalo, N. Y.—I just want to say that I think we report our cases of pseudo-glioma more promptly now. On looking up the literature I find that there are very many more cases on record than I had any idea of. If such cases were reported oftener we would have less trouble about malpractice suits. When there is reasonable doubt, I am inclined to think the eye should be removed.

DR. WALTER L. PYLE, Philadelphia—I desire to cite a very unusual source of confusion in the diagnosis of retinal glioma, which has not been mentioned. Recently, we had at Wills' Hospital a case which, according to general consensus, was one of advanced retinal glioma, but which after enucleation proved to be subretinal cysticercus.

DR. S. D. RISLEY, Philadelphia—The differential diagnosis between true glioma and pseudo-glioma is in some cases very difficult. I recall one instance where, after consultation with several colleagues of the staff at the Wills' Hospital the consensus of opinion was in favor of pseudo-glioma. Operation was deferred and the child discharged from the hospital, but returned in two weeks with great pain and marked increase of tension. The ball was excised and the growth proved to be a true glioma. It would have been better to have erred on the side of safety and enucleated the eye at once. The disease speedily progressed in the orbit and the child died in a few weeks.

DR. MARK D. STEVENSON, Akron, Ohio—A few years ago I had a case in which a diagnosis of glioma retinæ was made. It was then very small and I advised enucleation; the parents refused an operation after other specialists had claimed it was not glioma. The eye was removed about a year later in another city, and the child has since died from an extension of the tumor to the brain. A blind eye presenting a typical glioma should be immediately removed, as there is little to gain and much to lose by delay.

DR. HOLMES, in closing—In two out of three in the first stage the tumor was quite small, one not filling up more than one-quarter of the globe, so that there was considerable sight left at the time of enucleation. In the double enucleation there was no recurrence in the other eye for two months after the first was removed. The mother brought the child in because she thought its sight was failing, as it was beginning to stumble, and on examination we found the very beginning of a glioma, so small that others who saw it thought it might be acute exudative choroiditis. They came back in one week when it had grown considerably and two weeks later enucleation was advised, but refused. They came back five or six months afterward to have the eye removed for relief of pain.

I think it is very important to secure witnesses and the absolute consent, preferably in writing, from the parents, if you are going to remove an eye that still has considerable sight left. I think the golden rule applies in these cases—when in doubt, take the side of safety. In one case called pseudo-glioma I had to remove the eye afterward on account of inflammatory condition and I deem it best to take the side of safety and remove an eye that you can not prove to be pseudo-glioma.

GASTROINTESTINAL PERFORATIONS AND THEIR DIAGNOSIS.*

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INTRODUCTION.

That the most urgent need of the surgeon, when called to a gunshot wound of the abdomen, at the end of the nineteenth century, should be exactly similar to that of the surgeon under the same circumstances during the closing days of the eighteenth century is truly a remarkable circumstance. This painful lack of ingenuity or resourcefulness is a sad commentary on the century, which in many respects has been so brilliant from a surgical point of view.

In support of the accuracy of the above statement, a glance at what might be called ancient history will reveal an instance in which exactly similar circumstances gave rise to exactly the same line of thought with the employment of almost the same methods and materials in an effort to arrive at an early diagnosis in a case of suspected or possible perforation of the gut. In "Hunter on the Blood and Inflammation and Gunshot Wounds"[1] we find the report of a gunshot wound of the abdomen. At that time, as in our own day, the all-important question was as to the perforation or nonperforation of the "tractus alimentarius." In this connection he tells us that "fumes of tobacco by clyster" were prepared, "but fearing that such a procedure would cause an increase of the disease" they were loathe to employ it, and finally decided not to do so, the patient dying in about thirty-six hours.

Here is a suspected perforation occurring over one hundred years ago, and it is worthy of note that practically parallel cases (if the words hydrogen gas or ether vapor be substituted for fumes of tobacco, and with the exception that fear of an increase of the disease did not prevent the later surgeons from carrying the idea into effect) may be found in the literature not far from the close of the last century. This striking similarity shows

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but a pitiful progress, and it is our earnest desire and sincere hope that the next few decades may present a better showing in this particularly and singularly neglected phase of abdominal surgery.

The sciences of medicine and surgery differ radically in many respects, but in none is the difference so striking as in the character of the advances made in these respective branches during the past few years. In medicine progress has been made in enormous and rapid strides, almost exclusively along the line of diagnosis, resulting in an almost absolute and early diagnosis in many of the more common diseases, such as typhoid, pneumonia or tuberculosis. But, comparatively speaking, medical treatment is far behind the methods of medical diagnosis, and in many instances, despite new modifications and suggestions, the treatment is substantially the same as that practiced years ago.

Osler[2] says, speaking of pneumonia, under diagnosis: "No disease is more readily recognized, in a large majority of cases"; and under treatment says: "Pneumonia is a self-limited disease and runs its course uninfluenced in any way by medicine, and can neither be aborted or cut short by any known means at our command."

William Pepper,[3] speaking of typhoid fever, says: "In this disease it is preëminently true that a good nurse without any doctor is better than the best doctor without a good nurse."

Osler[2] says: "The profession was long in learning that typhoid fever is not a disease to be treated by medicines; careful nursing and a regulated diet are the essentials in a majority of the cases." And speaking of the treatment of tuberculosis: "No medical agents have any special or peculiar action on the tuberculous process." On the other hand, we find wonderful advancement in the diagnosis of these same conditions which defy any specific treatment. Such measures as the diazo and the Widal reaction, while not absolute, are of great aid in doubtful cases of typhoid. The finding of the tubercle bacilli and the tuberculin test aid materially in making the diagnosis of tuberculosis a very simple matter.

Refinements of diagnostic measures, while of the greatest value in many cases and good things in themselves, are of little or no avail unless there is some method of efficient treatment which can be instituted as soon as this early and accurate diagnosis has been arrived at.

In the domain of surgery the most striking improvements have been in the line of treatment, and, exactly opposite to the subject of medicine, diagnosis has not kept apace. For example, carcinoma and other malignant neoplasms and peritonitis can be treated successfully if recognized early, but are rarely diagnosed before treatment is of little avail. This is a most deplorable condition of affairs and should be improved. Of what value is it to physician, patient or relatives to be able to diagnosticate correctly and soon after onset a case of pneumonia, if no remedy or line of treatment is at hand with which to cure the disease? On the other hand, of what value is it to be able to remove a carcinoma of the pylorus, or even to ablate successfully the entire stomach, if we are unable to make a diagnosis till very evident symptoms arise, by which time the size of the tumor or metastasis will have made the removal of the entire growth and ultimate recovery of the patient an absolute impossibility; or again, in perforation of the intestine, if repaired immediately after injury, the result almost invariably will be union of the gut and recovery of the patient. But of what value is this familiarity with the technic of the enterorrhaphy when one does not know whether or not there is present an injury of the gut?

In the coming century the indications to be fulfilled are: in medicine, advancement in treatment, so that the physician will not only know the pathologic condition present, but in addition will be able to initiate some line of treatment which will result in the recovery of the patient. In surgery, on the other hand, treatment has advanced as far as it is practicable, and shall have to progress more slowly while the attention of originators and investigators is devoted to improvements of diagnosis, so that the surgeon will not only be familar with the *modus operandi* of the various operative procedures, but will also be enabled to employ them at a time when he can, at least, hope for more than palliation as a result.

The past century, so productive of exceedingly valuable suggestions and discoveries in all branches of medicine and surgery, has passed by the diagnosis of the gastrointestinal perforation almost without a trace of improvement. To be sure, attempts at an early diagnosis have been made, but the methods employed have been so crude and unscientific that the wonder is, not that they have been relegated to the past, but that they had ever been proposed seriously, even by their originators.

OLDER METHODS OF DIAGNOSIS.

The different attempts in this line may be arranged in a chronologic way, as follows:

1. **Hunter: Fumes of tobacco by clyster.**
2. **Senn: Hydrogen gas per rectum.**
3. **Sutton: Ether vapor per rectum.**
4. **Finney: Abdominal incision.**
5. **Lofton: Intestinal perforation searcher.**
6. **Exploratory needle and syringe.**

The earliest suggestions along this line we find in "Hunter on the Blood and Inflammation and Gunshot Wounds," already referred to, where no other attempt is seen in the available literature till in 1888, when Senn[4] advocated the injection of hydrogen gas per rectum as an "infallible" method of determining whether or not the gastrointestinal tract was intact. If so, the gas made a harmless passage and escaped at mouth. If a perforation existed, then after causing tympanites the gas was found to escape at the abdominal wound, where it was recognized by its being ignited and burning with a characteristic blue flame.

And again in 1898, Senn[5] claimed: "The writer has shown by his experiments on animals, and later by his clinical experiments in the treatment of a number of cases of gunshot wounds of the abdomen, that the rectal insufflations of hydrogen gas can be relied on in demonstrating the existence of perforations of the gastrointestinal canal before opening the abdomen." But despite this claim, the fear of causing fecal extravasation and the unreliability of the method has prevented its adoption.

Floyd McRae[6] says: "As to the gas test of Senn, it is worse than useless; it is dangerous; it is only corroborative; it is not conclusive as to a nonperforation and it greatly enhances the difficulty of the subsequent operation and increases the danger to the patient, because it produces extravasation of the contents of the alimentary canal into the peritoneal cavity."

Thomas Manley[7] says: "Inflation of the alimentary canal, from either above or below, may perhaps aid in deciding upon the diagnosis, but it must be regarded as

an expedient attended with more danger than counterbalances the additional knowledge it may convey."

In 1898 E. M. Sutton[8] reports some experiments in which he injected air, impregnated with ether, into the rectum as an aid in diagnosing gastrointestinal perforations, claiming as advantages over hydrogen gas that the ingredients are always at hand and no special apparatus is necessary and there are no noxious properties. He[9] reports a case of gunshot wound of the abdomen in which the alimentary tract was possibly injured; vapor of ether injected into the rectum was soon belched from the stomach. On which the diagnosis of no perforation was made, which in all probability was correct, because the patient made an uneventful recovery. The objections preventing the adoption of the hydrogen gas method applies with equal force to both of the other methods similar in character, tobacco fumes and ether vapor.

In Keen's[10] article on "Surgical Treatment of Perforation of the Bowel in Typhoid Fever," we find he gives Finney credit for the suggestion "that in any case in which the diagnosis is obscure and there is reason to suspect the existence of a perforation, a small incision be made under cocain anesthesia and that cultures be taken from the abdominal cavity. This exploratory incision would be followed by very little disturbance to the patient and very slight risk. If the presence of a septic peritonitis is determined this incision can be enlarged and the operation for the relief of the perforation and peritonitis can be at once carried out."

The most obvious objection to any such method is that we must await the development of a peritonitis. A diagnosis so early that when reached, the treatment will concern the perforation alone and at a time when there will be present no peritonitis to complicate the prognosis and treatment, is the need, a fulfillment of which we are endeavoring to find.

If we are to rely on this method in cases in which "the diagnosis is obscure," which will be in the great majority of perforations, we must await the increase in growth of the bacteria after their escape from the lumen of the canal in order to find them after making a small abdominal incision; in fact, we must await the development of a peritonitis before we are sure of the diagnosis. Its negative value would certainly be questionable, for cases will occur in which the incision and cultures were made too soon, before the bacteria have had time to multiply, which, if examined later, would give a positive result. Such a method when positive would frequently be too late and when negative could not be relied on universally. A case warranting an opening of the abdomen for possible perforation would certainly warrant, in addition, an exploration of the intestinal tube; to stop short of that after having opened the abdominal cavity, either by a large or a small incision, is insufficient.

The use of the exploring needle as a diagnostic measure in cases of peritonitis, perforative or otherwise, has been recommended. Osler[2] relates a case of ruptured tubal pregnancy which closely simulated peritonitis, in which he withdrew a bloody fluid from the peritoneal cavity with an aspirating syringe. But the question is ably summed up by R. H. Fitz:[11] "With reference to the exploring needle, the needle thrust into the iliac region may draw out a fluid which looks like pus and smells like pus, but which in reality is intestinal contents, so that apparently positive results are not necessarily demonstrative of pus. On the other hand, negative results are so numerous that it is better to place no dependence on the use of the exploring needle."

In 1901 Lucien Lofton[12] described an intestinal perforation searcher, which consists of a smooth glass tube 24 inches long and half an inch in circumference with an enlarged funnel-shaped extremity at one end. After perfect sterilization a small, loosely-fitting piece of dry absorbent cotton is inserted into the enlarged end, and the smaller end now allowed to descend into the abdominal cavity. When by continued application of your nose to the funnel, should perforation exist, you will almost immediately get the aroma of escaping intestinal fluids.

Chemistry, electricity, the *x*-ray, the microscope, spectroscope and the polariscope have performed feats of diagnosis but little short of the miraculous in many branches of medicine and surgery, but in the case of the gastrointestinal perforations these exceedingly important adjuncts to diagnosis have not been called on to contribute to our information. As Chittenden[13] has said: "The time is at hand when the practice of medicine is becoming what it was long ago, but then unjustly called a true science and art. No continuing success can be built on the empiricism or on the proportion of guess-work which is inseparable from the dependence on the experienced eye. Diagnosis is now the pass word in medical science."

PRESENT ACCEPTED METHODS: A. TO WAIT FOR SYMPTOMS.

In the usual cases of penetrating wounds, in all cases of contused wounds of the abdomen, in many cases of typhoid and other ulcerations of the gastrointestinal tract, it is absolutely impossible to arrive at a diagnosis of perforation before: 1, the development of the characteristic signs and symptoms of peritonitis, or 2, unless an exploratory laparotomy is performed. In the unusual cases, such as those which the injured viscus presents at the abdominal wound or in which the contents escape, the diagnosis is, of course, self-evident, but unfortunately such cases are extremely rare, and as regards them sufficient will have been said in their mention.

Maurice Richardson:[14] "The truth is that no exact diagnosis is possible in the early hours of many acute abdominal emergencies."

E. D. Fenner:[15] "I am impressed by the fact that we can never tell from general symptoms, or external appearances, whether the viscera have been wounded or not."

Flagg:[16] "When a man receives a penetrating gunshot wound of the abdomen there is no immediate way of determining without operation if the abdominal viscera are wounded or hemorrhage is taking place."

N. Senn:[17] "A visceral injury of the stomach or intestine seldom gives rise to symptoms on which the surgeon could rely in making a positive diagnosis."

The chief objection to awaiting the development of a peritonitis in a case of suspected perforation (which will be characterized by pain, collapse, vomiting, abdominal tenderness and rigidity, resp. costal, rapid and superficial 30 to 40, temperature 100 to 103 F., or subnormal, pulse rapid, small and weak, 100 to 150 tongue dry and coated, free fluid in abdominal cavity, liver dulness absent, tympanites—and with all these the well-known facies, Hippocratic) is that, if such be the correct suspicion, the diagnosis will not be arrived at till the peritonitis will have become so far advanced that in the majority of cases with our present methods the treatment will be of little or no value. Instead of being called on to repair a simple intestinal perforation, we must treat a case of peritonitis, more or less virulent, complicated with a perforation of the intestinal tube.

Fitz[3] says: "Peritonitis from perforation of the stomach or free portion of the intestine into the normal peritoneal cavity is almost invariably fatal." If this be true it is therefore our plain duty to diagnose and repair the damaged gut before peritonitis has become established, if possible; if not possible, then before it has progressed very far. That leads us to the question: How soon after perforation does peritonitis set in? This, unfortunately, can not be answered directly, because it is dependent on many qualifying circumstances, such as the number and the caliber of the perforation, the locality of the same, the variety, character or virulency of the escaping intestinal contents and, of no little importance, the resistance of the individual against infection. Peritonitis following intestinal perforations is dependent for its characteristics on the bacterial flora of the canal at the site of traumatism.

Cushing[18] has shown that in the upper portion of the intestinal tract the bacterial flora is more scanty than in the lower portion, hence wounds of the duodenum and jejunum are less fatal than wounds of the lower portion of the ileum and large bowel, all other conditions being equal.

In Keen and Tinker's[10] table of 158 cases of typhoid perforations, the shortest space of time elapsing between perforation and operation was one and one-half hours, in which case there was "a marked general peritonitis" present at the time of the operation, and in another case, four hours after perforation, "seropurulent fluid in peritoneal cavity, serosa injected," is noted. In another, after same time, "Considerable cloudy serous fluid was noted in abdominal cavity with some serous flakes on intestine." In none of the 158 cases, the time varying one and one-half hours to several days, is the absence of peritonitis noted.

Briggs,[19] in reviewing six cases of typhoid perforation operated on 8, 5, 4, 3, 1, and an unknown number of hours after perforation, says: "There was a moderate degree of peritonitis at the time of operation in all these cases judging from the amount of free fluid in the abdominal cavity."

In Shattuck, Warren and Cobb's[20] series of 24 cases, at the operation general septic peritonitis was not evident to the eye in Cases 1, 3 or 7. 1. Operated on in 3 hours; death 5 days; internal hemorrhage. 3. Operated on in 2 hours; death in 3 days; general peritonitis. 7. Operated on in 8 hours after pain, 5 hours after collapse; no free fluid; no extensive sign of peritonitis.

Robinson[21] says, in speaking of gunshot wounds of abdomen in military practice: "Generally it is from six to twelve hours or more before these cases can be brought to the operating table, and at that time infection, if it is to occur, has already taken place, or if not the danger is passed."

In Oliver's[22] tables of gunshot wounds of abdomen we find a case operated on one and one-half hours after the accident, and at operation a wound of the stomach with "a beginning general peritonitis" was noted.

Richardson[14] says, in speaking of gastric ulcer perforations: "By the end of twelve hours, and often sooner, the infection of the first few moments has become a peritonitis under full headway."

In Tinker's[14] analysis of 75 cases of perforated gastric ulcers which were operated on, the shortest time elapsing between perforation and operation was two and three-fourths hours, and at operation "a turbid fluid with lymph flakes on omentum and liver" was found.

H. Gage[23] details four cases of traumatic rupture of intestine, the shortest time between accident and operation was twenty-six hours, and at that time peritonitis was fully established.

Cushing[24] says: "In Case 1: An early diagnosis and immediate operation *before peritonitis set in* (italics are ours) led to recovery." In describing the operation, he says: "On opening the peritoneal cavity a considerable amount (perhaps 200 c.c.) of the seropurulent fluid escaped, coming chiefly from the pelvis. Cultures were taken from the fluid and it was immediately examined in cover-slip preparations. It contained a great number of polymorphonuclear leucocytes, but no microörganisms could be found. The serosa of the intestine was everywhere greatly congested, but evidently the greatest reaction was in the right iliac fossa, where the ileum was especially injected and covered with a slight fibrinous deposit. . . . . A few fine, filmy adhesions held the omentum to this part of the bowel," and on page 215 he again repeats: "The picture was complete *before* the onset of peritonitis," and on page 216: "The perforation was closed *before* there was *any evidence* of peritoneal infection, the culture from the free fluid remaining sterile."

In this case there certainly was a peritonitis present at the time of the operation, which accounts for the "seropurulent fluid containing many polymorphonuclear leucocytes (pus), the injection of the serosa of the intestine, especially in the right iliac fossa, with the slight fibrinous deposit and the few fine, filmy adhesions holding the omentum at this part of the bowel," and which gives a picture of beginning peritonitis. The fact that bacteria were not found and cultures from the free fluid remained sterile, does in no way prevent this condition from being properly called an inflammation of the peritoneum—a peritonitis. Had the case not been operated on, in all probability an abscess would have formed, which might have remained circumscribed for a greater or less length of time, and finally ruptured into the free peritoneal cavity, into the bowel, or externally, or not ruptured but lost its virulence and remained as an abscess. The formation of a fecal fistula is a most convincing argument that such was the case.

From these cases it will be seen that there is no exact space of time between perforation and peritonitis; it is long in some and short in others; therefore, as we do not know which will be short and which will be long, we must act as though the time will be short in all. A second reason for not awaiting the appearance of peritonitis in such suspected cases is, that very frequently the complete symptom complex may not appear, one or more of the more important features may be absent, with a peritonitis progressing rapidly.

F. A. Dunham[2] has said: "The more virulent the infection the less marked are the local signs of peritonitis," so casting a shadow of doubt on the diagnosis, even after waiting, and as a result of the waiting nothing at all has been gained. For example, Alex McPhedran[25] cites a case of apyrexial typhoid, a man in fair physical condition, in which perforation occurred without any localizing adhesions and symptoms of only moderate severity, not sufficient to alarm either himself or his friends."

C. A. B. Horsford reported an interesting case of perforated gastric ulcer in which the gastric contents escaped and accumulated in the right iliac fossa, presenting all the symptoms of appendicitis. The patient did not have the physical symptoms accompanying perforation; the pain was not severe, the abdomen was not generally distended, and the symptoms giving rise to a diagnosis of appendicitis did not arise until several days

after the perforation took place. The patient was not operated on, but the condition was discovered postmortem. Again in typhoid, especially where the patient is in the typhoid state and unconscious, the symptoms of pain and tenderness may not be attainable, thus casting a legitimate doubt on the diagnosis.

Cushing[24] has described "a preperforated stage of typhoid ulceration," during which, usually occupying several days, we may notice abdominal pain, tenderness and leucocytosis, with a disappearance of the latter after perforation has actually occurred. This pain he attributes to involvement of the serosa, with possibly the formation of omental adhesions. He includes in this stage the whole period between the first involvement of the serosa with the formation of customary adhesions until these adhesions (which may for a time form the floor of the ulcer after the serosa has given away) have themselves broken down and general peritonitis has taken place.

But Monad and Van Verts,[26] after examining the histories of 27 cases, say that the formation of these adhesions in threatened perforation is exceedingly rare. They also claim that peritoneal infection is not always a rapid fulminating affair; that it may occur by the migration of the bacteria through the damaged and almost necrosed intestinal wall.

Cobb[20] says: "In mild cases of typhoid complaints of abdominal pain should lead to a strong suspicion of beginning peritoneal infection through a preperforative stage, or a slow peritoneal infection through a perforation with or without temporary adhesion, or a beginning infection from some other source than the intestine."

A. Berg,[27] in discussing the preperforative stage, says: "Even granting that the peritoneal symptoms are from an involvement of the serosa, which covers a deep ulceration of the Peyer's patch, does this mean necessarily that the serosa will always give way and permit of extravasation into the free peritoneal cavity? Certainly not. How, then, can we think of interfering surgically for a perforation that does not exist and which may never take place? When our diagnostic acumen will have reached a higher stage of development, so that we can differentiate the signs of local peritonitis as caused by an impending perforation from the peritonitis produced by other pathological conditions, and when we are able to foretell which serosa over a deep ulceration will give way, then the preperforative stage will be a reality."

Keen,[10] in speaking of this preperforative stage, says: "Should it ever prove possible to accurately diagnose the preperforative stage, that unquestionably will be the most favorable time for the operation." And in his conclusion: "If it be possible to determine the existence of a preperforative stage."

Another reason why it is an unsafe practice to await the symptoms of peritonitis in these cases is that such symptoms are in some instances absolutely unreliable; they may be present more or less completely and at operation no perforation, or even peritonitis, may be found.

Shattuck, Warren and Cobb, in their series of 24 cases of operations for perforation, report three cases in which the symptoms lead to operation, but no perforation nor peritonitis was found at the operation. Two of these cases recovered and one died.

Cushing, in eight cases, reports three operated on for perforation, in which no perforation existed; in one no lesion to account for the symptom was found at the operation; recovery was uneventful. In another the symptoms were caused by an iliac thrombosis; the patient subsequently died of pulmonary embolism; and in the third the symptoms of perforation were due to appendicular colic. No perforation was found, but a chronic adherent appendix was removed; recovery.

Briggs, in a series of six cases, reports one in which symptoms of perforation occurred, but the opening of the abdomen under local anesthesia revealed a peritoneal cavity apparently normal and no perforation to be found; convalescence slow; recovery.

G. G. Davis[28] reports three cases of typhoid operated on for perforation; there was no perforation found in one case; recovery.

At the last meeting of the Association of American Physicians, A. H. Smith presented a paper entitled "Two Cases of Supposed Gastric Perforation," in which no explanation of symptoms was found at operation.

So if mistakes are made by these experienced clinicians (1 in 6, 3 in 8, 3 in 24), surely if the less talented men are to follow in their footsteps more mistakes will result. To be sure, in these cases few deaths and little or no inconvenience have resulted, but in those less favored by surroundings and nature, who are to make their diagnosis on these symptoms, will they meet with as fortunate an outcome? Perhaps if all cases were reported we might discover that death will occur oftener than we find in these reports.

Among the many conditions which may resemble peritonitis so closely as to lead to the error, we call attention to acute entero-colitis, intestinal obstruction, acute hemorrhagic pancreatitis, hysterical peritonitis, embolism of mesenteric artery, ruptured tubal pregnancy, intestinal hemorrhage, cholecystitis, suppurative mesenteric glands, diaphragmatic pleurisy, iliac thrombosis, appendicular attacks, etc.

There is no pathognomonic sign or symptom or group of symptoms of doubtful perforation of the gastrointestinal tract, Stewart to the contrary notwithsanding, who says:[29] "Obliteration of dulness in a flat belly or resonance over the posterior and lateral areas of hepatic dulness, in the distended abdomen and cellular emphysema are the only pathognomonic signs of ruptured intestine. They are not due to infection, but are the rare signs of rupture, not ulcerative, perforation of the gut." He then adds: "The occurrence of any of the above signs should make us suspicious, and suspicion should in most cases be synonymous with exploration." Showing that the above signs are not pathognomonic for they should merely make us suspicious, as pathognomonic signs are unmistakable indications of a given disorder, the term suspicious rather than pathognomonic should have been used.

Those cases in which the intestinal contents escape from the abdominal wound, or in which the injured portion of the gut presents at the wound, are not doubtful cases, but instead are plainly evident and have been spoken of above.

In the doubtful or possible perforation the absence of the liver dulness was for a time looked on as a positive indication of this condition, but its value as such has been questioned, since it has been demonstrated that the liver dulness may be diminished or even obliterated by tympanites alone.[15] This is accounted for by a distended coil of intestine insinuating itself between the liver and the abdominal wall, or in the case of extreme distention of the intestine the liver, entire, may be pushed up.

Another fact showing the fallibility of the sign is that in many cases in which the liver dulness was normal, at operation perforations have been found, so rendering it worthless as either a positive or negative sign.

An uncommon symptom is "The Acoustic Phenomenon of Levaschoff." A rushing sound was heard with

the stethoscope synchronous with the descent of the diaphragm, caused by the air or gas passing through the perforation, owing to the increased pressure due to the descent of the diaphragm. But it is rarely noted and is not now generally accepted.

The presence of free fluid in the abdominal cavity, in connection with the other symptoms, may point strongly toward a perforation, but it must be remembered that hemorrhage alone may give rise to the same physical signs, also simple hydroperitoneum must be excluded. On the other hand, in very few cases of perforation is there an escape of sufficient fluid to be detected at an early physical examination, at a later date, when the symptom is of infinitely less value, it may, of course, be found in some cases.

Kinnecutt[30] has been able to detect, early in these cases, before abdominal respirations have ceased, a fine peritoneal crepitation very similar to that heard over an inflamed pleura; a very careful auscultation of the entire abdomen is necessary, and it has as yet not been generally adopted.

Hematemesis after probable perforation of the stomach has been looked on, and is still regarded by many, as a pathognomonic sign of perforation of the stomach, but Rodman[31] quotes a case of Mayo Robson as follows: "I explored the abdomen for a stab wound, and as the patient was vomiting blood I expected to find a wound of the stomach, but discovered no perforation of the stomach wall, though I had to ligate the superior mesenteric vein, the patient making a satisfactory recovery; the hemorrhage was undoubtedly due to the bruising of the mucous membrane without rupture of the peritoneal coat." Thus showing that hematemesis after abdominal injury can not be relied on as a positive sign of perforation. In injury of the intestine the passage of blood per anum might, of course, be explained as above, but usually would occur too late to be of any practical value.

Leucocytosis as an aid to the immediate diagnosis of perforation has not been dwelt on to any great extent except in typhoid perforations.

Bloodgood[32] says: "Examinations of the blood after abdominal contusion, to ascertain the existence of shock, hemorrhage or peritonitis, are not sufficient in number to allow of any conclusions."

Leucocytosis in acute peritonitis has attracted more attention, but in this connection it is not of so much value as the former, for it is our aim to arrive at the diagnosis before the establishment of a peritonitis, and when it is once established we can, as a rule, make a diagnosis without the aid of the leucocyte count.

As regards perforation and leucocytosis during typhoid, to explain the present status of affairs and to show the conflicting opinions among authorities, we may quote from Cabot: "A steadily increasing leucocytosis is always a bad sign and should never be disregarded, even when other bad symptoms are absent"; and from Cushing, who adds: "That a decreasing leucocytosis may be a much worse sign and should never be disregarded." This he explains very rationally as follows: "If there develops a localized peritonitis associated possibly with a preperforative stage of ulceration, or with a circumscribed slow-forming peritonitis, after perforation, it will usually be accompanied by an increase of leucocytes in the peripheral circulation; but if a general septic peritonitis develop the leucocytosis may be but transitory or overlooked, as it will disappear concomitantly with the great outpouring of the leucocytes into the general cavity."

So it seems that an increase of leucocytes signifies some inflammatory complications, such as phlebitis, otitis media, pneumonia, etc., among which may be localized peritonitis.

On the other hand, a fall of the leucocytes conveys to us the information that a diffuse septic peritonitis has already become established, the one thing we do not want to wait for. This drop in the leucocytosis does not occur at the time of the perforation, as we are led to believe, but, if the theory as to its cause is correct, it occurs at the time of the development of the diffuse septic peritonitis.

The so-called wave of leucocytosis, the gradual increase and then a sudden decrease, is considered by Cushing to be particularly characteristic of perforation, but Cabot, Blake and Hubbard[33] made frequent blood counts in normal individuals and patients suffering from typhoid, in which no perforation occurred, and found such a wave as described above, and they conclude: "That leucocytosis usually exists in typhoid perforations, but in order to be of diagnostic value such leucocytosis must be relatively steady and not of the type described by Cushing."

Leucocytosis in most cases must be considered as an ordinary symptom, subject to the various uncertain changes of any such symptom. It may at times be conspiciously prominent and again, for no visible or consistent reason, be entirely absent.

Such variations as perforation and even diffuse peritonitis with no leucocytosis, and in other cases characteristic leucocytosis with other symptoms, leading to an operation, which when performed shows no perforation or peritonitis, place it in the large category of unreliable symptoms.

Concerning the leucocytosis in conditions other than typhoid, most of the study has been in relation to appendicitis. A leucocyte count ranging between 10,000 to 15,000 or 17,000 can not be relied on to reflect the nature of the local lesion, since this degree of increase may be found in various conditions. But counts of 20,000 or more almost invariably indicate the presence of pus, gangrene or general peritonitis, one or all. But, on the other hand, again showing its uncertainty, in some cases of general peritonitis there will be no leucocytosis, because of the individuals being too weak to react against the infection.

J. M. Baldy[34] has recently written an article with the title of "The Examination of the Blood in Relation to Surgery, of Scientific but Often of no Practical Value and May Misguide the Surgeons."

(To be continued.)

The American Medical Association has prospered to such an extent during recent years that it now worthily represents the medical profession of the United States. That this was not the position of the society from ten to fifteen years ago is generally recognized in this country. We in Canada rejoice with the physicians of the American Republic in the growing prosperity of their great national medical association. The present happy condition is due largely to the increased harmony existing among medical men in all parts of the Union, the great executive ability shown by its officers, and the excellence of the official journal of the Association. The next meeting of the Association will be held in New Orleans, May 5 to 8, under the presidency of Dr. Frank Billings of Illinois. Special addresses—called orations—will be delivered as follows: Medicine, Dr. J. M. Anders of Philadelphia; Surgery, Dr. A. F. Jonas of Omaha; State Medicine, Dr. Wm. H. Welch of Baltimore. It is quite needless to tell our readers that Canadians who attend this meeting will receive the same sort of kindly and hearty welcome which has invariably been extended to our countrymen in the past.—*Canadian Practitioner and Review.*

THE RESPIRATORY QUOTIENT AS INFLUENCED BY TUBERCULOSIS.*

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INTRODUCTION.

In 1777 Lavoissier showed that oxygen was absorbed from air during respiration and that it united with carbon in the body, forming carbon dioxid. This discovery caused many observers to determine the amount of oxygen consumed by normal animals and the amount of carbon dioxid given off by them. They also studied the relation of one to the other. When we consider the volume of carbon dioxid exhaled divided by the volume of oxygen consumed, this relation is known as the respiratory quotient. Generally more oxygen is consumed than carbon dioxid given off.

The object of these experiments was to determine the influence of tuberculosis on the respiratory quotient. A number of secondary facts have been established or confirmed, incidentally.

METHODS.

Some of the early experimenters (Black, Priestly and LaPlace) analyzed the air of a chamber before and after an animal had been confined in it. The objection to this method is that the animal is not in normal

Fig. 1.—Animal cage. 1. A large mouth bottle large enough to hold a rabbit. 2. A piece of glass tubing 6 to 10 mm. in diameter which extends through the cork (air tight) to the bottom of the bottle. This is to secure perfect ventilation as the air which enters by (4) is liberated at the other end of the bottle. 3. The cork should be impregnated with paraffin and fit perfectly air tight. 4. Short piece of glass tubing 6 to 10 mm. in diameter which is connected to the tube extending to the outside of the room.

surroundings because: (1) The amount of oxygen is continually decreasing. (2) The amount of carbon dioxid is continually increasing. (3) The heat of the animal raises the temperature of the chamber. (4) The moisture in the chamber is continually increased by the animal. (5) The poisonous products exhaled by the animal may affect it.

Lavoissier first improved this method by absorbing the carbon dioxid as fast as it was formed and supplying fresh oxygen in its place and later by continually supplying fresh air to the cage and withdrawing the respired air. The majority of workers have followed this plan and have maintained a constant current of air by ventilating apparatus of some form.

Whatever general form of apparatus may be used, the carbon dioxid can be determined by (1) KOH or NaOH solution in an anthracometer (volumetric). (2) By KOH or NaOH solution in a Geissler bulb (gravimetric). (3) By passing the air over pumice stone saturated with the same solution. (4) By precipitation with $Ba(OH)_2$, and then by filtering, drying and weighing the precipitate, or by determining the amount of oxalic acid necessary to neutralize this solution.

The oxygen can be determined by: (1) Absorption with potassium pyrogallate and (a) by use of a large bulb (weighing before and after), (gravimetric), or (b) by taking samples of air in burettes and allowing the solution of potassium pyrogallate to run in from below (volumetric). (2) By exploding with electricity in an endiometer. (3) By oxidation of phosphorus in samples of air.

The moisture can be withdrawn from the air (1) by passing it through flasks or tubes containing concentrated H_2SO_4 or flasks containing pumice stone saturated with the same (weighing before and after). (2) By passing the air through these tubes containing desiccated $CaCl_2$ (weighing before and after).

The constant current of air through any form of apparatus is usually maintained by suction, either by use of water or mercury.

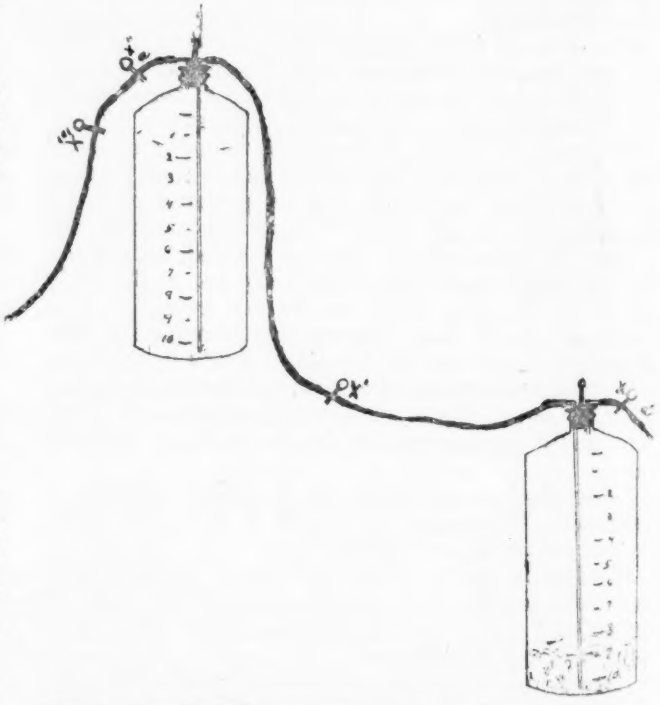

Fig. 2.—Showing the arrangement of the ventilating apparatus. The bottles equipped with air-tight corks and tubes as shown may be alternately raised and lowered by a strong cord running over a pulley attached to the ceiling. The siphon drawing off the water from the upper bottle lowers the pressure in it and draws a current of air through the apparatus. The amount of air supplied to the animal may be measured by noting the amount of water which traverses the siphon and may be varied by varying the height of the bottle. In alternating the position of the bottles one has only to lower the upper bottle and change the hook to the other bottle. The apparatus tube (*a*) should be changed to (*a'*) after clamping (*x'*) (*x''*) (*x'''*). In order to construct (*a*) (*a'*) so the clamps can be easily applied, it is necessary to connect a short piece of glass tubing to the glass tube which perforates the cork. This connection is made with a rubber tube on which the clamps are applied.

After performing a number of experiments we found the following method to be the most accurate and best suited for our work:

(*a*) For an animal cage we used a large mouthed glass jar, prepared for use as shown in Fig. 1.

(*b*) We maintained a constant stream of fresh air from outside of the room by a ventilating apparatus constructed as shown in Fig. 2.

(*c*) The water was collected by passing the air through tubes filled with desiccated $CaCl_2$ (weighing before and after). See Fig. 3.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Pathology and Physiology, and approved for publicaton by the Executive Committee.

(*d*) The CO_2 was determined by passing the air current through a Geissler bulb containing a strong solution of KOH, to which is attached a small $CaCl_2$ tube for catching the moisture derived from KOH by the air current. This Geissler bulb and its attached $CaCl_2$ tube is placed in the apparatus beyond the large $CaCl_2$ tubes which absorb the moisture from the animal cage. It is weighed before and after the experiment. See Fig. 3.

In order to be certain that all of the CO_2 was absorbed by the KOH a flask containing Ba $(OH)_2$ was attached to the $CaCl_2$ tube of the Geissler bulb so that the $Ba(OH)_2$ would at once show a precipitate should any CO_2 not be absorbed in the Geissler bulb. See Fig. 3.

(*e*) The oxygen is determined by a volumetric method, using two or more gas burettes and a solution of potassium pyrogallate. See Fig. 4.

To determine the amount of oxygen which the animal consumes, samples of air are analyzed from each bottle of air which passed through the animal cage. The amount of oxygen in normal air is determined by analyzing samples of air from the bottles which ventilate the normal air apparatus.

In performing these analyses the greatest caution is necessary. The solution which gives the most accurate results is composed of two parts of 25 per cent. of KOH and one part of 5 per cent. pyrogallic acid. These two constituents should be mixed in the pressure tube (B) Fig. 4, just before the analysis is made. To collect samples of air for analysis one first fills the gas burette with water by suction. Connection is then made, by a

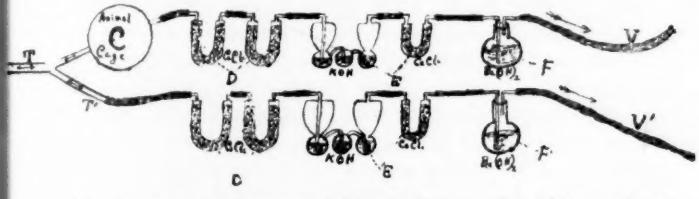

Fig. 3.—C. Animal cage explained in Fig. 1. D. Calcium chlorid tubes for collecting the moisture from animal cage. E. Geissler bulb, the bulbs of which are one-half full of 85 per cent. KOH, and to which is attached a small $CaCl_2$ tube for retaining the moisture derived from the KOH by the air current. F. Containing $Ba(OH)_2$ for detecting CO_2 which might not be absorbed in E. T. Tube which extends through the window to external air. T'. Tube which conducts part of the current to normal air apparatus. V. Connected with ventilating apparatus for animal cage. V'. Connected with ventilating apparatus for normal air.

rubber tube, with á from the top of the gas burette (A Fig. 4 to á Fig. 2). The stopcocks of the burette are turned so that the water in it escapes into the cup, as shown in Fig. 4, its place being taken by the respired air from the ventilating apparatus. The stopcocks are now turned so that no air can escape from the burette. The rubber tube of the pressure tube which has been filled with the potassium pyrogallate solution and previously freed from air is now connected to the lower end of the gas burette. See position 2, Fig. 4. If the three-way stopcock in the lower end of the gas burette (A) has been properly turned the solution from the pressure tube will escape from the end of the stopcock into the cup, as shown in position 2, Fig. 4. A small amount of the solution should be allowed to escape for the purpose of expelling bubbles of air which might have gained entrance to the lower end of the burette while connection was being made with the pressure tube. When all the air has escaped at the end of the three-way stopcock, it is turned one-half a revolution. If this has been properly done the solution will now run into the burette, coming in contact with the air to be analyzed. The pressure tube should now be elevated as high as the connecting rubber tube will admit and the potassium pyrogallate solution allowed to run into the burette (A). The clamp on the correcting tube should now be applied to it close to the lower end of the burette.

This operation made positive pressure in the burette, thereby causing a more rapid absorption of the oxygen. The burette should now be taken by the experimenter and its ends alternately raised and lowered. At frequent intervals he should loosen the clamp on the connecting rubber tube, and raise the pressure tube, thus permitting potassium pyrogallate solution to take the place of the oxygen as it is absorbed. This procedure should continue ten minutes, after which time the clamp on the connecting rubber tube should be loosened. The burette and its pressure tube should be allowed to remain ten minutes longer, at the end of which time the solution in the burette should be brought to a level with the solution in the pressure tube by elevating or lowering the tube. This causes the air in the burette to be under the atmospheric pressure existing at that time. The reading for the amount of oxygen is now taken.

To calculate the amount of oxygen consumed by the animal, one subtracts the amount of oxygen found in the

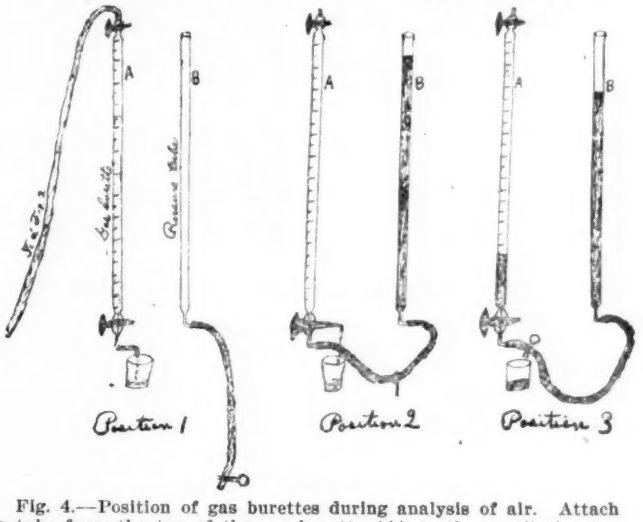

Fig. 4.—Position of gas burettes during analysis of air. Attach a tube from the top of the gas burette (A) to the ventilating apparatus at â (see Fig. 2) to catch air which has passed through the animal cage and which is escaping from â.

respired air from that found in normal air. At least two samples should be analyzed from each ten liters of respired air, the average being used to obtain the result.

In withdrawing samples of respired air, care must be taken not to release the clamp at á until positive pressure exists in that bottle.

In operating the ventilating apparatus care must be taken to clamp x, x′, x″ when the position of the bottle is to be changed, so that the respired air will not be contaminated by normal air which would pass into it on account of negative pressure which exists in that bottle. It also prevents the KOH in the Geissler bulb from being forced back into the $CaCl_2$ tubes on account of a slight negative pressure existing in the apparatus between the Geissler bulb and the water in the elevated bottle of the respiratory apparatus. This likewise prevents the water from flowing from one bottle of the respiratory apparatus to the other, causing a change of pressure, which is not desired until all connections are made for the change of position of the bottles.

OBSERVATIONS.

On account of the size of our animal cage, small animals, guinea-pigs, mice, and small rabbits, were used

in the experiments. The guinea-pigs and mice were full grown and well nourished. The rabbits were not full grown, but were in good condition.

In comparing tubercular animals with normal animals care has been taken to secure animals as near as possible of the same age. In this case the rabbits were of the same litter. The guinea-pigs were adults and similar in weight at the time of inoculation. In all cases the most virulent sputum which could be obtained was used and postmortem examination performed on the animals

TABLE 1.—Showing the amount of oxygen consumed, CO_2 exhaled, respiratory quotient, and the influence of feeding on the same in normal animals.

Date. 1899	Animal.	Weight Grams.	Length of Experiments. hr. m.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	R. Q.	Time of Feeding.
June 9	Rabbit, 1	370	1	448	426	.950	Half hour before.
12	" 1	372	1	398	353	.887	One hour before.
13	" 1	380	1	501	406	.810	" "
14	" 2	443	1 50	952	767	.805	Day before.
15	" 2	443	1 35	900	670	.744	" "
16	White mouse, 1	12	1 20	52	58	.900	Access to food.
19	Rabbit, 3	293	1 30	522	484	.927	Two hours before.
20	White mouse, 1	11	2 10	74	72	.966	Access to food.
21	" " 1	10	3	133	114	.857	" "
24	Rabbit, 4	470	1 30	500	493	.986	Just before.
27	" 4	467	1 20	593	553	.932	Half hour before.
28	" 5	240	1 10	320	270	.843	Access to food.
29	" 5	233	1 20	305	285	.934	Immediately before.
30	Guinea-pig, 1	611	1 15	586	470	.802	Access to food.
July 1	" " 2	371	1	442	383	.866	" "
5	Puppy	375	50	288	240	.830	" "
26	Rabbit, 6	478	1	484	403	.830	" "
27	" 6	480	1	459	418	.910	One hour before.
Dec. 2	" 7	808	1	891	767	.847	Day before.
3	" 7	814	1	927	805	.870	" "
4	" 7	851	1	1134	966	.851	" "
4	" 8	703	1 30	585	514	.878	Five hours before.
26	Guinea-pig, 3	616	1	765	571	.746	Day before.
27	" " 3	576	2	1564	1142	.730	Two days before.
30	" " 3	527	1	623	570	.910	Half hour before.

showed that the progress and results of the infection were the usual ones.

Tubercular rabbit 3 was inoculated June 2 and died July 27. Tubercular rabbit 6 was inoculated July 1 and died August 2. Tubercular rabbit 7 was inoculated November 17 and died December 10. Tubercular guinea-pig 1 was inoculated December 11 and died January 17.

RESULTS.

1. If the reader will make a careful study of General Table 1, he will find, in the column marked R. Q., the

TABLE 2.—Showing the amount of oxygen consumed, CO_2 exhaled, respiratory quotient, and the influence of feeding on the same in tubercular animals.

Date. 1899	Animal.	Weight. Grams.	Length of Experiments. hr. m.	Oxygen Consumed c.c.	CO_2 Exhaled. c.c.	R. Q.	Time of Feeding.
July 7	Rabbit, 3	429	1 20	404	353	.972	Just before.
12	" 3	348	1 20	501	458	.916	Half hour before.
13	" 3	327	1	340	330	.970	One hour before.
14	" 3	393	1	285	271	.948	Just before.
18	" 6	293	55	264	214	.811	Day before.
19	" 6	282	1	246	181	.735	" "
Dec. 1	" 7	832	1	765	637	.834	" "
1	" 7	789	1	608	566	.930	" "
26	Guinea-pig, 1	457	1	612	472	.771	" "
27	" " 1	425	2	969	700	.722	Two days before.
30	" " 1	412	1	473	447	.945	One and one-half hrs. before.

respiratory quotient for all normal animals experimented on. He will note that the range of variation of the respiratory quotient is very considerable, the lowest being .730 and the highest being .986, thus representing almost the complete recognized range of variation of normal animals as influenced by feeding. Note that the lowest respiratory quotient was shown by the animal experimented on December 27; note also that this animal had had nothing to eat for two days. This result is in harmony with the experiments of others upon fasting animals. A study of the table, with special reference to the time of feeding, will reveal the fact that the lower values of the respiratory quotients uniformly occur when the animal has been fed some time before the experiment. The highest value shown was in the rabbit experimented on June 24. This animal had eaten just before the experiment began, so that the one hour and thirty minutes devoted to the experiment represented the time during which the digestive process was most active. The other higher values shown will be found in those animals that had eaten just before the experiment or in those animals which had access to food constantly.

It is a matter of common knowledge that the character of the food has much to do with the value of the respiratory quotient. In herbivorous animals the respiratory quotient may reach one as its highest limit. The reason for this is evident, if we think of the chemical formula for any typical carbohydrate. The oxygen and hydrogen have to each other quantitive relations shown in water, and will require no further oxygen during the combustion or respiratory process. The carbon will form just as many molecules of carbon dioxid as there are molecules of oxygen required in the combustion or the respiration. It must be evident from this that the respiratory quotient arising from the oxidation of carbohydrate within the tissues of the living animal would be the same as the combustion quotient of the same substance when burned in a retort.

The similar study of typical foods will reveal the fact that the combustion quotient is equal to the respiratory quotient for fats but not for proteids. The reason for this is that fats undergo complete oxidation within the body, but proteids do not. The combustion quotient for proteids will then be higher than the respiratory quotient. The grams calorie represented in a proteid is 5,650 per gram of desiccated proteid. The animal body, however, is able to get from this proteid only about 4,000 grams calorie of energy. The difference (1,650) represents the relative difference between the combustion quotient and the respiratory quotient for proteids. The respiratory quotient in animals nourished wholly by proteids varies between .75 and .85. In fats the respiratory quotient is the same as the combustion quotient. The small proportion of oxygen, as compared with the carbon and hydrogen in the fat molecule, reduces the respiratory quotient for this foodstuff to about .7. It has usually been supposed by physiologists that the character of the nutriment, that is whether carbohydrate, proteid or fat predominated, would control very largely the value of the respiratory quotient.

The animals experimented on in this research were fed on carbohydrates exclusively, the rabbit eating cabbage leaves and carrots, while the guinea-pig and mice lived on cereals. The variation of the respiratory quotient noted in column R. Q., Table 1, depends, then, not on the character of the food, but on some other factor. The attention of the reader has been called above to the fact that this variable factor is nothing else than the variation of time of feeding. It may not be apparent at first how the difference in the time of feeding can thus modify the respiratory quotient, but we have only to remember that the animal begins, after a few hours of fasting, to consume his own fat and the circulating proteid of his blood to realize that within a few hours after each meal the herbivorous animal becomes, in a sense, a consumer of proteid and fat.

In a further examination of the observations it becomes necessary to reduce the data to common standards in order to compare with each other things which are strictly comparable. The first step is to express (Tables 3 and 4) the amount of gas exchange per gram animal per hour, Table 3 showing the normal and Table 4 the tubercular animals. Note that Table 3 gives the standardized data of Table 1, while Table 4 gives the standardized data of Table 2.

2. Relative to the amount of oxygen consumed and the carbon dioxid exhaled by animals under observation,

TABLE 3.—Showing the amount (cubic centimeters) per gram animal per hour, of oxygen consumed and CO_2 exhaled by normal animals.

Date. 1899	Animal.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	Time of Feeding.
June 9	Rabbit, 1	1.21	1.15	Half hour before.
12	" 1	1.07	.95	One hour before.
13	" 1	1.32	1.07	" " "
14	" 2	1.17	.94	Day before.
15	" 2	1.05	.80	" "
16	White mouse, 1	3.25	3.54	Access to food.
19	Rabbit, 3	1.18	1.10	Two hours before.
20	White mouse, 1	3.10	3.02	Access to food.
21	" " 1	4.43	3.80	" "
24	Rabbit, 4	.71	.70	Just before.
27	" 4	.95	.888	One-half hour before.
28	" 5	1.142	.964	Access to food.
29	" 5	.981	.904	Just before.
30	Guinea-pig, 1	.766	.615	Access to food.
July 1	" " 2	1.19	1.03	" "
5	Puppy,	.94	.76	" "
26	Rabbit, 6	1.01	.83	" "
27	" 6	.95	.87	One hour before.
Dec. 2	" 7	1.12	.95	Day before.
3	" 7	1.14	.99	" "
4	" 7	1.33	1.13	" "
4	" 8	.83	.73	Five hours before.
26	Guinea-pig, 3	1.240	.920	Day before.
27	" " 3	1.357	.991	Two days before.
30	" " 3	1.182	1.080	Half hour before.

it is interesting to note (see Tables 3 and 5) that the white mouse consumed nearly or quite three times as much oxygen and exhaled three times as much carbon dioxid as did the other animals. The reason for this seems to be that the small animals, and this is true as well of small birds as of small mammals, present larger surface to the atmosphere in comparison with the bulk of the animal than is the case with larger birds and animals. This seems to account for the fact

TABLE 4.—Showing the amount (cubic centimeters) per gram animal per hour, of oxygen consumed and CO_2 exhaled by tubercular animals.

Date. 1899	Animals.	Oxygen Consumed. c.c.	CO Exhaled. c.c.	Time of Feeding.
July 7	Rabbit, 3	.940	.820	Just before.
12	" 3	1.079	.980	One hour before.
13	" 3	1.030	1.000	" " "
18	" 6	.900	.730	Day before.
14	" 3	.970	.920	Just before.
19	" 6	.872	.680	Day before.
Dec. 1	" 7	.919	.766	" "
1	" 7	.770	.717	" "
16	Guinea-pig, 1	1.339	1.030	" "
27	" " 1	1.140	.882	Two days before.
30	" " 1	1.148	1.084	One and one-half hrs. before.

that the respiratory processes are more rapid in the small than in the larger ones.

Attention has been called above to the fact that the time of feeding is a most important element in determining the respiratory quotient. It becomes necessary, therefore, to eliminate the influence of this factor by comparing with each other only observations which represent practically constant conditions with respect to this factor. Table 5 shows in parallel columns the normal animals, divided into two classes, (1) those which had been fed immediately before the experiment, and (2) those which had been fed long before the experiment. Table 6 shows the same for tubercular animals. Note that the data of these tables represent simply the averages of strictly similar experiments on animals of the same species, as combined from Tables 3 and 4 respectively.

A study of Tables 5 and 6 makes it evident that the respiratory quotient of tubercular rabbits which had just been fed is greater than is the respiratory quotient of normal rabbits under the same conditions. The same is true when we consider the result with guinea-pigs. If we examine the respiratory quotient in those normal and tubercular animals which have been fed long before the experiment we must reach the same conclusion.

4. Let us now examine the result with reference to the amount of oxygen consumed and the amount of

TABLE 5.—Showing the influence of feeding on the amount of oxygen consumed and CO_2 exhaled, per gram animal, per hour, and the respiratory quotient in normal animals.

Animals Fed Two Hours or Less Before Experiments.					Animals Fed Twelve Hours or More Before Experiments.				
Animal.	Number of Experiments.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	R. Q.	Animal.	Number of Experiments.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	R. Q.
Rabbit	8	1.046	.954	.917	Rabbit	5	1.162	.956	.823
Guinea-pig	1	1.182	1.080	.910	Guinea-pig	2	1.298	.995	.738

carbon dioxid exhaled, leaving out of consideration the respiratory quotient.

While fasting, the tubercular rabbit consumed 60 per cent. as much O and exhaled 71 per cent. as much CO_2 as the normal rabbit under the same circumstances. After the consumption of food it consumed 82 per cent. as much O and exhaled 85 per cent. as much CO_2 as the normal rabbit under the same circumstances. This shows:

(*a*) That during all circumstances as to feeding, the tubercular animal consumes relatively less O and exhales relatively more CO_2 than the normal animal under the same circumstances. Since tuberculosis is a disease in which the animal is continually losing weight, a part of the loss of weight will probably come from the lungs in the form of CO_2 and not so much oxygen will

TABLE 6.—Showing the influence of feeding on the amount of oxygen consumed and CO_2 exhaled, per gram animal, per hour, and respiratory quotient in tubercular animals.

Animals Fed Two Hours or Less Before Experiments.					Animals Fed Twelve Hours or More Before Experiments.				
Animal.	Number of Experiments.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	R. Q.	Animal.	Number of Experiments.	Oxygen Consumed. c.c.	CO_2 Exhaled. c.c.	R. Q.
Rabbit	4	1.002	.930	.926	Rabbit	4	.865	.723	.827
Guinea-pig	1	1.148	1.084	.945	Guinea-pig	2	1.239	.956	.746

be required to support the metabolism of an animal that consumes less food and is less active than a normal animal.

(*b*) During the periods of fasting the tubercular animal consumes less O than the normal animal under the same circumstances. This indicates that the metabolism in the tubercular animal is less than it is in the normal animal. This, from the nature of the effect of the disease, we believe to be true.

(*c*) The rate of consumption of oxygen by the tubercular animal is not as constant as it is by the normal animal.

SUMMARY.

1. Time of feeding causes the greatest fluctuation of the respiratory quotient. Under favorable physical conditions it may rise to nearly 100 after the consumption of food, and may fall to about 70 during periods of fasting.

2. The respiratory interchange of gases is very much greater per gram animal per hour for the very small animals than for the larger ones.

3. Tubercular animals consume relatively less oxygen and exhale relatively more carbon dioxid than do normal animals under similar circumstances.

4. The respiratory quotient is raised under the influence of tuberculosis.

DISCUSSION

ON THE PAPER OF DRS. ADERHOLD AND HALL.

DR. LOUIS C. AGER, Brooklyn, N. Y.—Could the decrease in the volume of oxygen absorbed by a tuberculous rabbit be accounted for by a decrease in the area of absorbing lung tissue? Would a rabbit in the early stages of pulmonary tuberculosis, or with tuberculosis of some other part of the body absorb less oxygen?

DR. CHARLES T. MCCLINTOCK, Detroit—Did Dr. Hall notice any difference in the absorption of oxygen according to the moisture in the air? It is well known that tuberculous patients breathe badly on moist days.

DR. LEO LOEB, Chicago—Did the temperature make any difference in the experiments performed?

DR. F. F. WESBROOK, Minneapolis—I should like to ask Dr. Hall if the infection of his animals was produced by subcutaneous inoculation of the tuberculous sputum and, if so, whether any steps were taken to eliminate possible variations which might result from pyogenic and other bacteria which were in association with the tubercle bacilli. This variation would, of course, be more marked in some cases than in others. For example, if streptococci were present in the sputum inoculated, the effect on rabbits and mice would be much more severe than on guinea-pigs. The site of inoculation might have an influence as well.

I should like to inquire, also, whether concurrent determinations of the nitrogen output were made and whether the loss of body weight mentioned could be accounted for by the changes in the operation of the respiratory mechanism.

I wish to congratulate the authors on their method of employing a second or control tube to gauge the amount of carbonic acid and moisture in the air supplied to the animal, whereby the objectionable feature involved in furnishing them with a perfectly dry air was done away with.

In 1895, in work along the same lines done in collaboration with Dr. Lorrain-Smith, we supplied our animals with air from which both moisture and carbonic acid had been removed. This always seemed to me too artificial and to be the source of possible errors in deductions.

DR. W. S. HALL, Chicago—First, in regard to the amount of oxygen consumed in relation to the amount of lung tissue: these animals only lived a few weeks, and the lungs did not seem to be particularly affected. It was a general tuberculosis, and there seemed to be no decrease in the amount of functional lung tissue.

Second, in answer to Dr. Loeb's question, the temperature was not taken throughout the whole period, but was taken on a number of occasions, and on all of these occasions it was slightly above normal in the tubercular animals.

Third, regarding the humidity: it is a part of the laboratory protocol furnished us weekly by the United States Weather Bureau (Auditorium station) and also determined by our air analysis, but we took no account of this in writing up our experiments. It has, however, not escaped our attention. Dr. Aderhold did not think, from a study of the laboratory notes, that the humidity was of sufficient importance to record it in the published tables. It might, however, add interest to these tables, in excluding humidity as an active factor, in modifying the respiratory quotient, if for no other reason.

Fourth, as to the difference in infection, as spoken of by Dr. Wesbrook: the injection was subcutaneous and, naturally, there was more or less mixed infection, but the little streptococcus infection that followed some of these injections was moderate and did not seem to be the cause of the death of any of the animals used in the series of observations. In these animals the disease seemed to run the usual course of tubercular infection, but in one or two cases Dr. Aderhold reported an animal dying in a shorter time, and evidently of mixed infection, and such animals were not included in the series of observations.

DR. LOUIS C. AGER, Brooklyn—As long as there was only slight destruction of lung tissue, did you form any conclusions as to the cause of lack of oxygen absorption? Was it due to decrease of hemoglobin?

DR. W. S. HALL, Chicago—The relation of the two conditions, loss of weight and decrease of consumption of oxygen, is the puzzling point of the problem. I wish I could answer this question as to how there can be a loss of tissue with a decreased oxygen consumption. If there was as much food taken in during the course of the tubercular infection an increase of oxygen consumption would be necessary to oxidize this food and carry it out of the body. I am inclined to think we could not get a loss of weight and wasting of the tissues, together with a decreased oxygen consumption, unless we had a decreased alimentation. We notice that in tubercular cases this is true, and an evident loss of appetite was observed in these animals. I think this is the only way we can account for it.

THE INTRACELLULAR TOXINS OF SOME OF THE PATHOGENIC BACTERIA.*

VICTOR C. VAUGHAN, M.D.
ANN ARBOR, MICH.

Two years ago, at a meeting of this Association at Atlantic City, and before this Section, I had the privilege of describing some experiments made by some of my students and myself on intracellular toxins. I desire in this paper to make some additional statements on this subject.

By means of the large incubating tanks which I described in a paper read before the Association of American Physicians in 1901, and which are figured in the transactions of that society, I have been able to obtain both pathogenic and non-pathogenic bacteria in large amounts absolutely free from the constituents of the culture medium on which the germs have been grown. In this way I have studied the cell substance of the colon bacillus, the bacilli of diphtheria and anthrax, the *Micrococcus prodigiosus*, and the lemon and orange sarcines. I have found that the cell substance of all of these organisms is more or less toxic to guinea-pigs and rabbits. The toxicity varies with the virulence of the culture employed. The cell substance of the colon bacillus after extraction with alcohol and ether and complete desiccation in vacuo kills guinea-pigs when injected into them either intraperitoneally or subcutaneously in proportions of 1 part of the poison to 45,000 parts of body weight. For rabbits this substance is somewhat more toxic. By heating the cell substance of the colon bacillus for a period not exceeding 30 minutes at a temperature of the water bath with a 1 per cent., by weight, solution of sulphuric acid in water we have been able to split off a soluble toxin which, when injected into animals, causes symptoms and lesions identical with those obtained after injection of the unbroken cell.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. Alfred Stengel, L. Hektoen and Frank B. Wynn.

The toxin thus split off seems to be of relatively simple composition compared with that of the whole cell substance, but so far I have not been able to obtain it in a sufficiently pure state to justify an ultimate analysis. The probabilities are that this split product which has this specific toxic action belongs to the class of protomins which were discovered by Miescher and which have been subsequently extensively investigated by Kossel and his students. However, I may note the fact that the toxins obtained in my laboratory by means of dilute sulphuric acid and heat do not give a satisfactory biuret reaction, while protomins of Miescher and Kossel respond promptly to this test. We have also found that the part of the cell substance which remains after hydrolysis with dilute sulphuric acid is still toxic, but much less so than the whole cell substance, or that part split off by the acid. Theoretically I infer from this that the molecule of the colon bacillus contains two or more toxic side chains, only one of which is split off by dilute sulphuric acid, while the other toxic side chain remains unaffected and gives to the residue after extraction with dilute sulphuric acid its poisonous properties.

Probably the most interesting piece of work done in my laboratory during the past two years is that on the toxin of the anthrax bacillus. We have obtained the cell substance of this organism in large quantity and have found that the dead germ substance, when mixed with water and thoroughly sterilized and injected intra-abdominally into guinea-pigs in amounts of from 200 to 300 mg., causes death, and that anthrax lesions are found. By heating the germ substance with 1 per cent., by weight, of sulphuric acid in the autoclave at 110 for 10 minutes, complete sterilization is secured and the acid splits off a substance which, after filtration, is precipitated by pouring the filtrate into three volumes of absolute alcohol. This precipitate when collected, thoroughly washed until every trace of acid has disappeared, dried in vacuo, and pulverized, forms a snow white powder, which is soluble in water rendered feebly alkaline with sodium bicarbonate. This powder, when thus dissolved and injected intra-abdominally into guinea-pigs of from 200 to 300 grams weight, in amounts of 50 mgs. or more, causes death with lesions similar to, if not identical with, those observed after death from typical anthrax. It seems to me that this must be considered the specific toxin of anthrax. All of the theories concerning the modus operandi of germs in causing disease have been applied to anthrax, inasmuch as this has been considered the typical infectious disease. Various attempts have been made to find the specific toxin of this disease.

A review of some of the work that has been done along this line may be of interest in this connection. As early as 1877 Pasteur filtered cultures of anthrax through porcelain and injected the germ-free filtrate into animals without effect, thus showing that this organism does not elaborate a soluble toxin. Some years later Hoffa reported that he had obtained from pure cultures of the anthrax bacillus small quantities of a ptomain which, when injected under the skin of animals, produced the symptoms of the disease and death. At first this substance caused increased respiration and action of the heart. Subsequently the respirations became deep, slow and irregular. The temperature fell below the normal, the pupils were dilated, and a bloody diarrhea set in. On section the heart was found to be contracted, the blood dark, and ecchymoses were observed on the pericardium and peritoneum. Hoffa called this poison anthracin, and later he reported that he had isolated it from the bodies of animals dead with anthrax. These results could not be considered satisfactory. Moreover, several investigators have repeated Hoffa's experiments with negative results.

In 1889 Hankin prepared from cultures of the *Bacillus anthracis* an albumose which, when employed in comparatively large amount, proved fatal to animals, and when used in very small quantity gave immunity against subsequent inoculations of the living germ. Subsequent investigations have failed to confirm Hankin's results. Brieger and Fraenkel reported that they had found a toxalbumin in animals dead from anthrax. In their experiments the liver, spleen, lungs, and kidneys of animals recently dead from this disease were finely divided and rubbed up with water. This emulsion was allowed to stand in a refrigerator for 12 hours, when it was passed through a Chamberland filter and the toxalbumin precipitated from the filtrate with absolute alcohol. Conradi has carefully repeated Brieger and Fraenkel's work with negative results.

Martin grew the anthrax bacillus for from 10 to 15 days in an alkaline albuminate from blood serum, then filtered through porcelain, and obtained from the filtrate the following products: 1. Protoalbumose and deuteroalbumose, and a trace of peptone, all of which substances behave like similar bodies prepared by peptic digestion. 2. An alkaloid. 3. Small quantities of leucin and tyrosin. The most characteristic property of the albumoses obtained by Martin is that their solutions are strongly alkaline, and the alkalinity is not removed by treatment with alcohol, benzol, chloroform, or ether, or by dialysis. The alkaloid was found to be soluble in water, alcohol and amylic alcohol, but insoluble in chloroform, ether and benzol. Its solutions were strongly alkaline and it formed with acids crystalline salts. The mixed albumoses were found to be poisonous only in considerable doses, 0.3 of a gram being required to kill a mouse of 22 grams weight when injected subcutaneously. Smaller doses caused local edema and a somnolent condition, from which the animal recovered. Larger doses produced more extensive edema and the somnolence deepened into coma and terminated in death. The alkaloidal body reported by Martin is apparently not identical with that obtained by Hoffa. Marmier grew the anthrax bacillus in a peptone culture medium and reported that he had obtained a toxin from sterilized cultures of these growths by precipitation with ammonium sulphate.

The most recent work on the anthrax toxin, before that done in my own laboratory, was reported in a very exhaustive paper in the *Zeitschrift für Hygiene* by Conradi. This investigator reviews extensively the literature of the subject, and adds experiments of his own. From all the evidence that he could obtain at that time, Conradi came to the conclusion that the anthrax bacillus does not produce either an extracellular or intracellular toxin. If the work in my laboratory be confirmed, it will show that the anthrax toxin is a constituent of the bacterial cell, from which it can not be removed except by certain chemical disintegrations of the cell substance. A few experiments made in my laboratory indicate that the part of the cell which remains after extracting the above mentioned toxin with dilute sulphuric acid is also toxic. However, the extent to which it is toxic has not yet been determined. Many interesting questions arise in connection with this work, and I am tempted to enter into the discussion of some of them, but will forbear until I have amplified my experimental researches.

Our work with the diphtheria intracellular toxin is exceedingly interesting. From the experiments that we have made we conclude that the intracellular toxin of diphtheria is not identical with the soluble toxin. Commercial diphtheria antitoxin protects animals against the soluble diphtheria toxin, but fails to protect against the intracellular toxin. This offers, apparently, a plausible explanation for the fact which has been observed by others that natural immunity to diphtheria toxin may be possessed by animals which are not immune to diphtheria infection.

The cell substance of the *Micrococcus prodigiosus* and of the lemon and yellow sarcines are toxic in varying amounts, depending largely on the extent to which the cells are purified from the mucilaginous substance surrounding them in the culture medium.

The full paper, of which this is an abstract, has been prepared for the Rockefeller Institute, and will doubtless be published in the reports of that organization.

ANGIOSARCOMA OF THE LIVER.

REPORT OF A CASE.*

J. C. COOK, M.D.
CHICAGO.

NARRATION OF CASE.

A child was presented at my clinic, Aug. 5, 1901, aged 3½ years; female. The first indication to the mother of any trouble was noted five weeks previous, when she observed a small tumor, or hard lump, in the right iliac region and a week later a similar growth was noticed in the corresponding location in the left side. Both grew until they met. About this time the child vomited some, but this did not persist. The bowels became constipated and the abdomen distended, and she began to lose weight.

Examination.—The following clinical findings were noted: temperature normal, pulse 110 to 120. Urinary examination revealed nothing. The child presented a markedly distended abdomen, measuring twenty-five inches at its greatest circumference, which increased to twenty-seven inches August 28. No blood had escaped from any of the cavities; no history of malignant disease could be obtained; white blood corpuscles 12,000, hemoglobin 50 per cent., red blood corpuscles 3,600,000. The child presented an emaciated appearance and wore an anxious expression.

Operation.—August 6 an exploratory incision was made by Dr. Allen B. Kanavel which revealed a tumor filling the entire abdominal cavity, grayish white in appearance, soft and friable, evidently malignant in character, that could not be separated from the ovaries, uterus or kidneys. The latter organ was believed to be its origin because of the relative frequency with which it is attacked. The laparotomy revealed the absence of fluid in the abdominal cavity. Further operative procedures were abandoned, as it was believed they would not increase the chances of recovery. The abdominal wound was closed and united rapidly.

Subsequent History.—The child was sent home, no change occurring worthy of note except that on August 20 the right leg became edematous. She died on August 28 under a diagnosis of inoperable sarcoma. The entire course from the first symptom to the end was two months.

Autopsy.—I am indebted to Drs. Kanavel, Richter and Springer for the following postmortem report: The body was greatly emaciated, the right leg markedly, and the left leg slightly, edematous. About two quarts of clear serous fluid escaped on opening the abdomen.

The tumor appeared to be both extraperitoneal and intraperitoneal, as if it had grown under the peritoneum to both sides, then had extended up through the mesenteric attachment in the median line and on the right side, for here the growth was restricted into a sort of neck. Once well up into the mesentery, it expanded and broke through into the peritoneal cavity, growing for the most part down into the pelvis so as to give on palpation early in the course the suggestion that it originated here, the irregularity of its growth leading the mother to find two nodules, one on each side. The two portions of this dumbbell-shaped mass are about the size of a ten-year-old child's head, and it is soft like a child's brain. On cut section pulpy, whitish or bloody areas arise above the surface, the latter being numerous and due to extravasated blood from the numerous newly-formed blood vessels present. Here and there bands of firmer tissue running in every direction serve to bind the mass together, while numerous peritoneal bands on the surface, stretched tight, increase the verrucosity of the lobulated mass. The aorta and vena cava lie behind. Between the two masses were found the kidneys, connected by a fibrinous band giving the appearance of a horseshoe kidney, connected inferiorly by an isthmus of flattened kidney tissue an inch and a half in width and from an eighth to a quarter of an inch in thickness, gradually thickening and widening at each end to unite imperceptibly with the lower pole of each kidney, coming up as high as the pelvis. The upper poles are free. The capsule of the kidney covers, both anteriorly and posteriorly, all of the left and the upper pole of the right, but inferiorly on this kidney it extends out to include the tumor growth which grows by a prolongation from the lower pole, a neck of kidney tissue changing into tumor tissue so gradually that at no place can one say, macroscopically at least, here is kidney tissue and there adjoining is tumor growth. This neck is about one-half inch in diameter and one-half inch long.

The arteries and veins come in from each side to the upper part of the kidney, the vein being superficial. They bifurcate to go dorsally and ventrally to the pelvis of the kidney; then ramify on the isthmus uniting with the corresponding vessels of the opposite side. The ureters are separate below, lying ventrally to the lower pole, and are connected by a communicating branch lying in the kidney tissue along the upper part of the isthmus. They run down between the intra- and extraperitoneal tumors. The kidneys are of normal size and the pelvis is not dilated.

The omentum was filled with metastatic growths varying in size from a pea to a walnut. The same may be said of the iliac mesentery. No other metastases were found either in the organs of the body or in the lymphatic system, bones not being examined. Spleen, heart, liver and pancreas were entirely negative; slight emphysema of lungs. The tumor mass, with kidneys attached, weighed seven pounds.

Says Ziegler: "A sarcoma is a connective tissue tumor in which cellular elements are much more prominent than the intercellular substance. A typical sarcoma, as the name implies from the Greek, is fleshlike in consistency. In appearance it is generally more or less rounded, often enclosed in a capsule, but may be irregular, infiltrating and unencapsulated. Their consistency is soft or hard, according to the number of cells and amount of intercellular substance composing them."

ETIOLOGY OF SARCOMA.

"The frequent occurrence of sarcomata in young persons," says Conheim, "is among the evidences pointing to a congenital origin." Traumatism and inflammation play some part, either in developing a lesion from which it may have an origin, or stimulating a new growth from a latent sarcoma.

No specific form of bacteria has been demonstrated, yet the parasitic theory has many adherents in recent years. Experiments with implantation of the disease in animals have been unsatisfactory. Some relationship has been traced between sarcoma and syphilis (Stengel). The seat of the sarcoma is from pre-existing connective

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. Edwin Rosenthal, H. M. McClanahan and Samuel W. Kelley.

tissues and may arise in nearly any organ or structure of the body.

THE VARIETIES.

It is essentially malignant in character and tends to recur after removal. Metastasis occurs through the circulation. The degree of malignancy varies greatly. The small round cell and melanotic varieties are the most dangerous. The exact influence of sarcoma on metabolism is unknown, yet it is a well-established fact that sarcomatous growth is injurious to the general health, as is shown by the marked emaciation, anemia, leucocytosis and the sometimes existing irregular fever. The structure of sarcoma cells is round, cylindrical and spindle-shaped. The spindle-celled sarcomas are harder than the round cell. The round cell variety may be almost entirely composed of spherical cells, large or small in size. These enter into combinations in various ways and are modified by their combinations and the structure in which they are located.

Stengel, in discussing tumors of the kidneys, says that sarcoma is the most frequent malignant tumor. It may occur congenitally or in later life. The multiform character of sarcoma of the kidney suggests an embryonal origin and it is not unlikely that the primitive Wolffian bodies are the starting point of the disease.

The special variety of sarcoma to which the specimen from this case belongs is known as an angiosarcoma, or more correctly "hæmangio sarcoma." In this variety the sarcomatous proliferation begins in the adventitious coat of blood vessels. The tissue of the tumor in typical cases is almost wholly composed of a tangle of vessels whose walls are surrounded by heavy masses of cells which extend even as far as the endothelium. Such a tumor, therefore, is made up essentially of thick-walled cellular tubes which partly follow an independent course and partly unite with other tubes by an anastomosis which gives rise to a complicated mass of twisted and interwoven cords. However, it should be mentioned here that in both endothelium and angiosarcoma the alveolar and tubular structures may be wholly lost in places through the diffused manner in which proliferation takes place. Angiosarcoma occurs in the brain, kidney, testicles, lymphatic glands, breast, skin, bone, thyroid and liver, although it is a very rare occurrence in the two locations last mentioned.

THE RECOGNITION AND PROMPT REMOVAL OF POSTNASAL ADENOIDS IN CHILDREN.*

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PHILADELPHIA.

The importance of the consideration of our subject is evident when we observe the divergent views presented by different authors as to the instruments to be used in operations and the varying ideas as to anesthesia. That the subject is still uppermost in the mind of the specialist is evident from a consideration of this year's programs of the Section on Laryngology and Otology, where three papers out of a total of thirty-three are presented on the growths in the nasopharynx, and of this Section on Diseases of Children, in which three papers out of a total of thirty-nine are devoted to the same subject.

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Diseases of Children, and approved for publication by the Executive Committee: Drs. H. M. McClanahan, Edwin Rosenthal and Samuel W. Kelley.

FREQUENCY AND CAUSES.

As to its frequency, opinions of authors are much at variance. Ingals of Chicago reports but 2 per cent. out of ten thousand private chest, throat and nose patients, while Frankenberg reports 59 per cent. in the 158 inmates of the Deaf and Mute Institute at Prague. Some writers incline to believe that adenoid enlargements are not more common in deaf mutes than in the more normal members of the community, and that when they are present they have no causative effect on the deafness. Yet Arslan and others report cases where they have succeeded in restoring the hearing by proper removal of the growths followed by appropriate after-treatment.

We all know that children are peculiarly prone to these growths; that they are apt to arise in the second, third and fourth years; that occasionally they seem to be congenital; that in adults the tendency to proliferation and closure of the lymphoid tissues appears less often, and the disease is much more rare, but yet exists more frequently than is popularly supposed.

I believe that most authors agree that it occurs more often in boys than in girls. I can not say that this has been impressed on me, but I do know that it is a very frequent disease in children, and while I have not thoroughly analyzed my cases, I am sure that in my work I have observed it in over 10 per cent. of all the children I have treated in my private practice, and during one week of May, 1902, I removed adenoids from five children, while there is rarely a week that I do not remove one or more of these growths in my private work.

In regard to constitutional predisposition, most authors agree that there is an hereditary tendency; there are some who do not concur that the lymphatic or scrofulous diathesis has any bearing on the case. There is no question that they are more frequent in the weak, the poorly nourished; those who give evidence of the strumous diathesis. Children who are the victims of scrofula, syphilis, tuberculosis, anemia, chlorosis and chronic malnutrition are most prone to develop these tumors. In addition a very moist climate is a powerful agency in precipitating the condition. In my own experience I can not say that I have ever found these adenoid growths in a child that, to me, seemed the picture of health. It is, however, to be considered that in some few cases it may have originated from some local disorder in the nasopharynx, the resulting ill health being subsequent to the growth.

A factor in proving that the enlargement is usually not a local condition is that in nine cases out of ten the faucial tonsils also are enlarged and diseased. This fact has been noted by numerous writers, among others William Meyer, Morell Mackenzie, H. Lennox Browne and Joseph Gruber. There appears to be a tendency to disease in various other lymphoid structures.

DIAGNOSIS.

As to the method of making the diagnosis, the symptoms observed are usually sufficient—the difficulty of breathing, the mouth breathing, the open lips, the vacant countenance, the loss of memory, the stammering, the poor hearing, the dead, flat, muffled voice, the cough, the pinched wing and flattened bridge of the nose, the flat chest, the general lack of health and vitality, and the enuresis and indigestion, and numerous nervous reflexes, all go to make up a picture which when present can not be mistaken. When the diagnosis is a probable one, but not certain, it can be made fixed and definite by examining the rhinopharyngeal space by means of the index finger of the right hand inserted through the

mouth back of the soft palate. The nature of these growths is simply that of hypertrophies of the normal lymphoid tissue, and containing varying amounts of fibrous and connective tissue. The masses are sometimes single, lobulated, clustered or stalactitic; sometimes soft, again hard or tough; sometimes very friable, again encapsulated; sometimes occupying the vault only, again extending far over to the sides involving the entire rhinopharynx and completely occupying the fossæ of Rosenmüller as well as the eustachian tube orifices. These growths seem to predispose their subjects to numerous diseases. They are constantly troubled with catarrh, always taking cold in the head; they usually develop tonsillar and other throat diseases. They are peculiarly liable to hay fever, bronchitis and pneumonia. They almost always have some insufficiency in the heart's action. They often develop nervous affections, such as enuresis and asthma and even chorea and epilepsy; paroxysmal sneezing is most common. They are very liable to all the acute fevers, such as diphtheria, scarlet fever, measles, etc.

Diseases of the ear follow in many cases; acute inflammation of the middle ear and mastoid is by no means uncommon, and deafness is often present. Friederich explains this as follows:

> Any and all diseases of the nose and post-nasal space which are followed by obstruction of the nasal passage lead to passive hyperemia in the mucous membrane, which in turn produces occlusion of the eustachian canal. . . .
>
> The obstructions may be situated in the post-nasal space, and may take the form of hypertrophied pharyngeal tonsils, tumors, syphilis, or tuberculosis occluding the posterior nares. Hence the recognition and removal of any obstacle to nasal respiration should constitute an integral part of every examination and treatment of the ears. There can be no hope of curing the ear affection before the causes which are responsible for the congestion of the mucous membrane have been removed and the permeability of the tube has been restored. If I have included hypertrophy of the pharyngeal tonsils or adenoid vegetations among the diseases which produce hyperemia and swelling of the mucous membrane, with occlusion of the tube by interfering with nasal respiration, it is because I believe the occlusion is due to a general "adenoid habit" of the nose and pharynx, rather than to the direct mechanical intrusion of the pharyngeal tonsil. The "adenoid habit" manifests itself in the rhinoscope image as a hyperplasia of the entire lymphatic ring of Waldeyer; the follicles in the posterior pharyngeal walls and in the longitudinal folds on each side of the pharynx are more numerous, and are intensely red and swollen. Hyperplasia of Rosenmüller's crypts and of the anterior fold of the tube may develop as the manifestation of a general hyperplasia of all the lymphatic elements entering into the formation of the so-called pharyngeal lymphatic ring; hyperplasia of these structures necessarily favors the occlusion of the tube by compressing the orifice.

Disorders of the digestive apparatus are quite the rule; the condition is precipitated by the usually profuse discharge which flows down the posterior wall of the pharynx, most of which finds its way, with children, into the stomach, where it sets up irritation through the processes of fermentation. Another factor seems to be the lack of the usual quantity and even the healthy quality of the buccal saliva. In addition such children are apt to bolt their food because of the lack of nasal breathing preventing thorough and comfortable mastication.

The rhinopharyngeal region is subject to much variation. The bones at the base of the skull which serve as the roof of this space vary much in their growth and development; in some the space is narrow and high, again it may be shallow and broad, or it may be flat or well rounded in either of these cases. Its usual appearance is somewhat like a section of a long cone, the apex of the cone being above and arched. Were this invariably so instrumental operations would be much simplified, and would be followed by more uniformly good results. As a matter of fact we never strike two of these cases exactly alike; there are constant variations.

The most serious and the most frequent of these variations is where you find the sides of the rhinopharyngeal walls separated from the central or posterior wall by hard, bony ridges, which in some cases extend up into the extreme upper and anterior terminus of the pharyngeal vault. I should say that in children this peculiarity is observable in perhaps two out of every ten cases, and its presence is a serious interference to instrumental operations, whether by the forceps or the curette, but especially to the former. Not infrequently do we find cases which have been thus operated on where parts of these bony ridges have been torn away, and yet where part of the growth lying down in the hollow between these ridges has not been removed; in other words, necrosis was going on simultaneously with enlargement of the adenoid growth after the operation had been performed and pronounced completed.

These bony ridges are apt to start just above the level of the soft palate and extend usually into the vault, dividing the bony walls into a central and two lateral sections. In other words, there are three sections of a cone arched above.

METHOD OF TREATMENT.

The old, passive, medicinal treatment is nowadays very rarely attempted, but in some measure, of course, it comes into play in every case in the preparation of the patient for operation. The use of cleansing alkaline, antiseptic and astringent washes, and the use of drying and astringent powders, as well as protective or medicinal oils and salves, are all necessary for this purpose, and they may in addition be useful in allaying the symptoms as well as in restoring any lack of confidence the little patient may have in his doctor. It gives each an opportunity to study the other. Such treatment may perhaps occasionally cure a case, but usually it will only improve the symptoms.

Formerly some advised that the only necessity in these cases was to keep the parts clean and give the growth a chance to atrophy and disappear. Now this dependence on faith and cleanliness is not to be advised. It is a relic pure and simple and has no place in present-day treatment. The only conclusion to be reached is to remove the growth at the earliest period practicable, and to do it thoroughly, and to avoid exposing the little patient to any unnecessary risk.

The removal of these growths by electricity has been advised by a number of writers, Burnett and others advising the cautery points, Sajous using the cautery loops or snare, on account of the supposed painlessness and convenience, as well as the almost uniform results. These methods, however, have not been followed by good results and are rarely used.

It is now understood that whatever method is employed it must give assurance of the entire removal of the growth and a reasonable certainty of its non-return.

ANESTHETICS.

Before considering the operations proper, which conform in the main to the foregoing proposition, we should consider for a moment the subject of anesthetics, local and general.

Local anesthetics, such as cocain, holocain and eucain, can be used by application through the nose and throat, and will do much to dull the sensibility of the parts if you can only have the child held perfectly steady; no doubt all the necessary operative procedures could be done without any very serious difficulties. Even the Meyer ring curette or the Gottstein curette, the guillotine, or any of the numerous forceps could be employed without subjecting the child to serious pain if nervous apprehension and fear were not a factor.

As a matter of fact, however, children can not hold well for such serious and menacing operations, and it is because of this lack of control on the part of the child that most of the operators have been driven to use general anesthesia. Now the operators in this field are by no means agreed as to the best and least dangerous anesthetic to use. Many advise chloroform, and as many condemn it. Numerous deaths among these cases have been reported from its use. Ether is advised and used by many, and then once in a while one of our little people takes the long sleep. Bishop uses bromid of ethyl; others find it dangerous. Nitrous oxid and nitrous oxid administered with oxygen is used, but while it is apparently the safest (13 deaths in a record of 750,000 administrations) it has the disadvantages that doctors can not readily administer it, and its effects are so evanescent. The A. C. E. mixture has been employed. It also has numbered its victims in our adenoid operations.

It is a matter of common knowledge that our adenoid tumor patients are peculiarly susceptible in the cardiac region; they are more liable to syncope and death without premonition. It is unfortunately true that while some of these cases are reported, and they are now not an inconsiderable number, yet by far the majority of these results are never put into print, and we have no means of knowing just how serious is the problem that confronts us. I venture to say that if accurate statistics could be obtained general anesthesia in these cases would be almost discarded. Henry Gradle says:

> Narcosis makes the operation more formidable and necessitates more assistance. It does not in any way permit a more thorough operation, as most of the relapses which the writer has seen had been operated previously by others, and by himself under anesthesia. The pain in well-arranged operations is not sufficient to necessitate the superfluous risk of an anesthetic. It is only in cases of unruly children from whom active resistance must be expected that narcosis becomes necessary. Narcosis is also preferable when the faucial tonsils are to be excised at the same sitting, as this triple operation is usually too severe a tax on a child's endurance.

METHODS OF OPERATION.

Coming now to consider the various methods of removing these growths, we have first the method of William Meyer, who worked through the nostril with a ring curette while the index finger of the other hand was in the rhinopharyngeal space, the jaws being kept apart by a gag. This has the advantage of an exploring finger constantly present during the operation, the disadvantage being the employment of a general anesthetic.

The operations by the various curettes, such as the Gottstein, Hartman, Beckman and numerous others, are performed under an anesthetic and have the disadvantage that you do not know exactly what you are doing and what you are not doing. You may take away too much or too little; you usually can not completely clean out the fossæ of Rosenmüller, nor can you easily clean out the vault; and again, you may damage the bone and soft structures, especially should the case be one of the anomalous formation of bony longitudinal lateral ridges. The Gottstein and other curettes are not infrequently broken in these cases. In the *Laryngoscope* (May, 1901) two such cases are reported in the personal work of C. R. Holmes and H. S. Garlick. Unless the parts are examined by the finger after this operation a surgeon can not be certain of having finished the work.

Guillotines, such as those of Schutz and Gradle, have the same disadvantages, except they are not so apt to cause injury, but in most cases they are as ineffective as the curettes, or more so.

Forceps, such as Loewenberg's lateral, or Schutz's anteroposterior, and their numerous modifications, have, in the main, the same objection as the pharyngeal curettes. They, however, have the decided advantage that one can rarely cause quite as much damage with the former. The amount of power which can be, and often is applied to these parts by means of the curette is practically limitless. As above observed, numerous cases are constantly occurring where the curette is broken during the operation. Outside of this advantage all the other disadvantages encountered with the curette pertain in using the various forceps.

THE FINGER NAIL METHOD.

There is another method of which I want to speak more at length; a method which can be used in connection with general anesthesia, or, as I prefer, with local anesthesia. Numerous operators, such as Dalby, Capart, Bezold, Lennox Browne, Guye, Kyle, Newcomb, J. L. Gibson, Beverly Robinson, Pritchard, Baber and others, have used and advised the finger nail, or modification of it, by attaching a sharp steel piece to the index finger, the nail or metal acting in each case as a curette. This method has, of course, the advantage that the operator knows all the time just what he is doing; he can explore all the recesses and remove all the enlarged tissues without injuring any of the normal structures. It has the additional advantage that there is no necessity for the administration of a general anesthetic, and thus the needless jeopardizing of human life is avoided.

According to Sir William Dalby, "The diagnosis of adenoid vegetations can only be made with certainty by digital examination, as this alone gives absolute certainty as to their localization, size, extent, form and resistance." As opposed to this I quote Emil Mayer: "Why should you put your finger up there and simply hurt the child for no reason whatever?" I take it as a self-evident truth that when we have a means of being certain of the presence of such growths and can so readily learn their exact location and their nature, it is wrong to neglect this knowedge and to operate with cutting instruments in the dark, where we can not see what we are doing, and using them with perhaps enough force to do positive damage.

How easy it is, on making this digital examination and learning the condition of this region, to at once, as soon as the pathologic condition is ascertained, to remove the enlarged thickened tissues.

Whenever I suspect the presence of these growths, and have obtained the confidence of my little patient sufficiently, I ask the child to open its mouth, saying that I want to feel something inside, and then, without any display of curettes, forceps, etc., I enter the index finger of the right hand with the nail hardened by dipping it into alcohol or reinforced by my jointed artificial finger nail into the child's mouth and feel the condition of the parts in the nasopharynx and remove at once all diseased and enlarged structures, in many cases finishing the entire operation at once.

METHOD OF OPERATION BY ARTIFICIAL OR NATURAL FINGER NAIL.

In order to indicate to you how quickly and yet how thorough the entire procedure is, I will try and detail to you the various steps in the treatment, examination and operation. Being suspicious of the presence of the thickened adenoid tissues I examine the nares and throat thoroughly but gently, and cleanse both cavities thoroughly with sprays, washes, gargles, etc. When these are thoroughly cleansed I seat the child in a revolving arm chair with a spittoon on patient's left hand, and having thoroughly cleansed my right index finger, and having dipped it in alcohol, I put two or three turns of a one-inch adhesive plaster over the first phalanx of my right index finger, and still further protect it by putting over it two or three turns of a doubled two-inch roller bandage, the end of which is secured by making one turn about the wrist, and as you are about to make a second turn pass the free end under the turn already in position. Standing on the right of the patient I lightly put my left arm about the child's head, holding his head against the lower part of my chest; tilting his head a little forward, I insert the right index finger on the right side of the jaw as far back as possible—not using any gag to keep the jaws apart—and quickly carry it back of the soft palate up into the nasopharyngeal cavity, clearing out all the thickened and overgrown tissues at the vault and posteriorly, in the fossæ of Rosenmüller and at the eustachian tube entrances. While doing this the left arm clasps the child's head more and more firmly while bending it forward over the spittoon. All the thickened tissues found are scraped out until the surfaces feel smooth and natural. In the eustachian region I especially press on the tissues in order to overcome any infiltration or congestion. I do not leave the cavity until I am convinced that all the diseased tissue has been removed, or I am convinced that my own finger nail is not strong enough to cope with the form of tissue present, or there is evidence that the blood and detritus are interfering markedly with the child's breathing—these two latter conditions are very unusual in their occurrence, and should they occur it means that either the same day or the next, if possible, I will again enter the cavity and, if necessary, with a steel finger nail remove every bit of diseased tissue discoverable. The entire operation rarely takes more than a minute, and is usually followed by very little hemorrhage.

AFTER-TREATMENT.

After the operation I clean out the throat and nose carefully, use some soothing ointment in the nose, and advise that liquid albolene or mentholized oil be used in the nose and throat at home. In a few days I examine the region, when, if healing has been perfect, the nasopharynx will feel smooth and soft, and there will be little or no danger of recurrence, and if everything is well I may, perhaps, re-examine after a further period of three or four days, if urged to do so by the parents or the physician, but I do not think this necessary unless there be untoward symptoms.

This operation avoids all dangerous procedures, it causes very little pain and it is done without the dangers of general anesthesia; it requires no gag and no display of instruments. While it is simple it is thorough; it is scientific, inasmuch as we verify each step of our proceedings; it is done with the usual antiseptic precautions, and it does not leave the irregular roughened edges usually present after most operations by other methods. In other words, it removes all the pieces and does not allow shreds to remain here and there.

As for a recurrence, it is comparatively rare when the method has been thoroughly carried out, as it more effectively removes the last vestige of affected tissues than can be done in any other way.

Personally, I have many times performed the operation by the above method where previously one of the other methods had been tried with general anesthetic, and in not a few have found considerable cicatricial obstructive tissue around the eustachian orifices and occasionally exposed bone, and often remnants of the lymphoid growth.

Whatever the operation employed, it is absolutely necessary in every case to know the exact condition of the rhinopharynx after the operation. I fear that too often this is neglected, and this is responsible for many of the cases that recur early after the operation. This digital examination should never be neglected.

The after-treatment of these cases is simply that of the catarrhal conditions invariably present plus the treatment of the open wound of the nasopharyngeal vault. Mentholized oil and camphor preparations with alkaline washes and antiseptics are the most important.

CONSTITUTIONAL TREATMENT.

As to the constitutional measures to be employed, it is my opinion that their use is never to be neglected. If syphilis, tuberculosis, scrofula, chlorosis, anemia or digestive or nervous disturbances exist in connection with this growth they must receive appropriate and constant attention.

Cod-liver oil and syrup of the iodid of iron will, on the whole, be most frequently employed. In rachitis and some other cases, phosphorus will be of special advantage, while the hypophosphites and arsenic and the chlorid of iron will frequently come into play. Many of our patients will need saline, alkaline and lithia waters. They will all require plenty of exercise and fresh dry air and sunshine. Their skin clothing should be pure wool but light in weight, the weight and thickness of the outer garments being regulated according to the weather. They should have frequent baths, warm or cold, or both, as the exigencies of the case require. The avoidance of all heart sedatives, such as coffee and tea, is a necessity. The food should be plain and nutritious and should be ample in quantity.

CONCLUSIONS.

Summing up the conclusions which we have reached we find:

1. That the disease is a very frequent one, especially among children.
2. That it is relatively much more common among the poorly nourished and those suffering from constitutional and nutritive disturbances, and is rarely observed among the apparently well.
3. That it is usually found in connection with enlarged pharyngeal tonsils.
4. That it is most frequent among deaf mutes.
5. That its presence is usually determined by the symptoms, but digital examination is both easy and certain.
6. That its presence causes most serious local and general derangements.
7. That its presence predisposes to numerous diseases.
8. That the treatment must be operative.
9. That the operation should be done without general anesthesia.

10. That the finger-nail operation is the most thorough, as well as the most safe.

11. That the rhinopharynx must be examined after every operation.

12. That the finger-nail operation is less likely to be followed by recurrence than the more serious operations.

13. That constitutional treatment must be thoroughly instituted in all these cases in order to overcome the predisposing cause of the growth.

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DISCUSSION.

DR. W. C. HOLLOPETER, Philadelphia—I have always felt this was a subject which had been slighted by the pediatrist. The operation appears to be a cardinal necessity, especially when the sense of hearing is disturbed and the child sleeps with his mouth open, also when swallowing is followed by rapid and inefficient mastication. The author has covered the ground very admirably, and has simplified the surgical treatment. I think the majority of those following this special line of work are inclined to believe that the operation is more satisfactorily done without anesthesia and with the natural or artificial finger nail The artificial finger nail exhibited by the author seems to me rather large; indeed, it is often rather difficult to introduce one's own finger. I should like to have an expression of opinion concerning the use of bromid of ethyl, as Dr. Bishop uses it, as an anesthetic in these cases.

DR. S. W. KELLEY, Cleveland—I have been pleased with the terse statements of this paper. What has been said by him about the number of instruments being indicative of an operation being either very easy or rather difficult applies also to the question of posture during operation and the use of anesthetics. In one case you may choose one posture for the patient; in another, another. But posture may vary according to the fancy or the habit of the operator, or be determined by the question of anesthetics. You may find it convenient to have the patient held in the lap of an assistant, while another holds the head and, perhaps, the gag. You may lay the patient down, with the head hanging over the end of the table. You may take his head under your left arm, or you may simply stand him up against the wall, and so on, according to the case you have to deal with. With some patients a local anesthetic can be used, and there is no trouble, while others can be operated on easily without any anesthetic. In some cases it seems to be impossible to do this operation without general anesthesia, because of the temperament or lack of training of the child. He may be too unruly, or he may be too timid. In some cases a general anesthetic would be contraindicated. As a rule I do not like to use cocain in children. And, notwithstanding all that has been taught about the safety of chloroform in childhood, I have on four occasions met alarming symptoms from its use (not for this operation). So that I do not resort to chloroform unnecessarily. I prefer to do this operation when possible without an anesthetic.

The curette with a handle is a powerful instrument, and I believe a great deal of harm is occasionally done with it. Some operators proceed to use this powerful instrument as if they were about to remove plaster from a wall. Whenever possible I use my finger, and I find it a great deal better than the use of an instrument. Of course there are growths that will yield only to a sharp edge. It is just like the question of using the finger or the curette when it becomes necessary to remove the secundines in a case of miscarriage. I like the artificial finger nail exhibited, but I think the steel blade is too long and must interfere with the turning of the instrument. I prefer to use a narrow artificial finger nail, which slips under the natural finger nail and is guided by the palmar surface of the finger. Any of these instruments will occasionally pull off the finger; hence, I feel safer when a turn of bandage is taken through the last ring of the instrument and is then wrapped a few times around the finger or hand. This also has the advantage of preventing the child from biting the operator's finger.

DR. H. L. K. SHAW, Albany, N. Y.—I am in favor of general anesthesia for the adenoid operation, and I have witnessed the bloody operations done in England and some other places, to which reference has been made. I also believe that one can do very much better with the curette than with the finger nail. I use ether as often as chloroform, and just as soon as the operation has been done the head of the patient is held downward to allow of the escape of blood.

DR H. J. ROCK, Aberdeen, S. D.—Is it not a general principle that chloroform is the least objectionable anesthetic, particularly in the case of children? In a fairly extensive experience I have used chloroform, taking plenty of time to secure anesthesia by this means, and I have seen no harm from its use in this way. As soon as the operation is done the child is turned on the side, with the head low.

DR. J. F. KLINEDINST, York, Pa.—My work is limited to the treatment of eye, ear, nose and throat diseases, and, hence, I do many of these operations. When the child is so unruly that an anesthetic must be used, I prefer chloroform. My experience has been that of many others, i. e., that chloroform is more dangerous in this operation than in others, though we know, of course, that children stand chloroform well. I have not had any fatal cases, but in some the symptoms have been very alarming, so that I do not like to use it. I have used frequently a combination of cocain and adrenalin chlorid, and it seems to be a good one, because adrenalin is known to be a powerful heart stimulant and will counteract, to a great extent, the depressing action of the cocain. Moreover, the adrenalin, by its astringent hemostatic action, lessens the amount of hemorrhage. Why chloroform is dangerous I can not say, unless it may be that the chloroform is not given to the extent of abolishing all reflexes.

CYCLIC VOMITING IN CHILDREN,

WITH REPORT OF CASES.

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All neuroses necessitate an exclusion of organic disease, a most difficult task, and an appreciation of an unusual excitability of the nervous system. Of all the various gastric neuroses, secretory, sensory and motor, with their protean manifestations, none are subjects of greater interest than the motor and, though perhaps of less frequent occurrence, none of the motor of more interest than cyclic vomiting.

MECHANISM.

The mechanism of vomiting includes a vomiting center, situated in the medulla near the respiratory center, from which impulses are sent to the diaphragm by the phrenic nerves, to the stomach and esophagus by the pneumogastric and the abdominal muscles by the intercostal nerves. The complex act consists in an inspiration, the glottis closing, the diaphragm contracting the longitudinal fibers of the stomach opening its cardiac orifice, when contraction of the abdominal muscles completes the act, forcing out the stomach contents. The muscles of the diaphragm, of the abdominal walls of the stomach itself, require simultaneous contraction and must be co-ordinated by a relatively strong nerve center. The process is almost physiologic. Act of the will quite controls eructation, or belching of gas from the stomach and, in some instances, regurgitation or bringing up liquid or solid food from the stomach. Individuals have been able to vomit at will.[1]

In the condition known as merycism or rumination swallowed food is returned and chewed over again. Poorly masticated food may be returned and even enjoyed at will, says one writer.[2]

With these strange exceptions, however, unlike a physiologic process, the nervous and vascular systems are always reduced in power, probably not only by the act, but by the morbid process which produces the condition

acting on other parts of the nervous system than the vomiting center.

CAUSES.

The differentiation of the causes of vomiting in children frequently presents difficulties. The causes are varied; children give little or no history and the practitioner must grope his way much as the veterinarian. Called for the first time, or in the first attack, to a child with excessive vomiting, with little or no history, we wish to call attention to a class of cases to which such vomiting may belong, and the differentiation of such cases from other attacks of vomiting in children.

The attacks which are herein described occur in gouty and neurotic children and are due to toxins from faulty metabolism and faulty kidney elimination. The attacks are distinct neuroses, being due to the action of a toxin on the vomiting center in a predisposed subject.

Such neuroses have been described at length in literature by Holt,[3] Rotch,[4] Pepper,[5] Griffith,[6] Gee[7] and other writers. The distinctive features of this gastric neuroses (cyclic vomiting) is that it occurs in a certain type of children, gouty and neurotic.

SYMPTOMS.

Cyclic vomiting has been likened to migraine in its tendency to recurrence or periodicity. Prostration is extreme. Death has been reported in two instances.[8] One other case of death unreported has been brought to my notice by Dr. C. Seltzer, where all known remedies were of no avail.

The vomiting is excessive, severe, protracted, and nothing can be retained by the stomach. Thirst is likewise excessive and distressing. There is no connection in an attack with diet or indigestion. There is generally a fever of indefinite type.

Abdominal symptoms are quite immaterial and varied. The abdomen is generally about normal in appearance. There may or may not be constipation. The urine seems the most distinctive feature, being loaded with amorphous urates and uric acid crystals entirely out of proportion to the fever and other phenomena. Closer study of the urine in all cases may reveal the true cause, possibly blood examinations assisting.

ILLUSTRATIVE CASES.

The following case histories illustrate the condition:

CASE 1.—Boy of 6, well nourished, whose father is subject to arteriosclerosis, and whose mother suffers with recurrent attacks of migraine. The patient had been subject to attacks generally of no longer intervals than eight months.

The prodromes of the attacks were generally malaise, headache, and disgust for food and soreness of the abdomen, with some rise of temperature. The attacks of vomiting were sudden, severe, occurring every half or 2 or 3 hours, and lasting for several days, till the child was completely exhausted. The fever continued throughout the attack. Convalescence was rapid. The urine was always loaded with excessive amorphous urates and uric acid crystals.

The treatment consisted of calomel 1/10 (plain, i. e., dry) on tongue, 1 every hour till ten doses; cocain ½ gr. in 24 hourse, given in ¼-hour intervals. Later, phosphate soda. He was restored to health.

CASE 2.—Pale, round-shouldered and of sickly appearance. Both parents were near the age of fifty at her birth and both are of marked neuropathic type. Her diet is always carefully regulated. Cold has precipitated an attack.

There has never been a history of indigestion or constipation, no acid eructations, or foul breath, or coated tongue, or bad taste in the mouth preceding an attack. Skin, conjunctiva and stools are about normal, and there is generally no gaseous distension of the bowels. The prodromes were heavy eyes, with dark rings beneath, no disposition to play, but rather to rest, lying down most of the day.

Vomiting began suddenly. The child insisted on the basin constantly at hand, saying every few minutes, "I am going to vomit," and retched violently. The blood was not examined. The urine was loaded with uric acid crystals and amorphous urates.

Cocain, at first in larger doses and gradually decreasing, controlled the attacks with calomel in tenths as before, dry on the tongue. This was followed by phosphate of soda, and later syr. hypo-phosp. comp. established convalescence.

CASE 3.—Girl, aged 9, of gouty family. Attack precipitated by grief over death of her mother. Mother's death caused by chronic interstitial nephritis, revealed at the autopsy, urinary findings being negative till fatal uremia. Child was of very affectionate temperament, pupils filling the eyes, a highly developed and easily irritated sympathetic nervous system.

Attacks began with nausea and slight vomiting for a time, and then attacks which were violent and persistent occurring almost every hour. Temperature ranged from 99 to 101. Vomited material consisted of frothy mucus and serum, very acid. The blood was not examined. The urine was loaded with excessive uric acid crystals and amorphous urates.

At the end of the third day the face was pinched, heavy black rings under the eyes, eyes half closed, body drained of fluids and condition one of prostration and collapse. The pulse was 160 and very weak, requiring digitalis and strych. hypodermically. The tongue was singularly clear and red. The abdomen was neither distended nor flattened, but about normal, although auscultation revealed an absence of peristalsis. There was present distressing thirst and hurried and irregular respiration, though hurried respiration, particularly at the time of vomiting, should have little significance, owing to the proximity of the respiratory and the vomiting center.

The treatment consisted of high enemas of saline solution and a hypodermatic injection of morphin 1/18, and atropin 1/500. The duration of the acute attack was five days. The after-treatment was symptomatic, consisting of sedatives, eliminatives and tonics.

During convalescence itching skin and eczematous rash over the buttocks suggested a blood irritant of the uric acid series.

Thirteen weeks followed of irregular pulse and slightly elevated temperature—90 to 100—with no other explanation than a marked disturbance of metabolism.

This case seems to be properly classified as of the "cyclic vomiting" type, the causative factor in this instance being an emotion from an unusual cause.

DIFFERENTIATIONS FROM OTHER ATTACKS OF VOMITING.

A condition most likely to be confounded with these gastric neuroses is the more ordinary recurrent bilious vomiting.

The points of distinction are these:

IN BILIOUS VOMITING.	IN CYCLIC VOMITING.
1. History, improper feeding.	1. No such history; may occur with most careful diet, with no symptoms of indigestion.
2. Unloading the bowels relieves.	2. No such effect.
3. Tongue coated.	3. May be clean.
4. Breath heavy.	4. Breath late in attacks may have wine odor of acetone, but otherwise normal.
5. Abdomen bloated and distended.	5. Generally about normal.
6. Abdominal pain and colic.	6. As rule, none.
7. Abdominal peristalsis and with colic.	7. Auscultation of abdomen, especially later in the attack, reveals absence of peristalsis.
8. Stools often clayey.	8. Generally normal.

IN BILIOUS VOMITING.	IN CYCLIC VOMITING.
9. Ordinary febrile urine.	9. Urine scanty and loaded uric acid crystals and amorphous urates out of proportion to other symptoms.

In cyclic vomiting, in conclusion, the excessive thirst, cyclic character, severity and persistence of the vomiting are quite pathognomonic. A differentiation of other causes of vomiting requires an examination of all the organs.

1. Vomiting may be due to local disease, irritation of the walls of the stomach itself, as in cases of any irritation, as of medicine or of food in quantity or quality, overdistension with gas, congested mucous membrane, with irritating secretions, which cases reveal themselves by a study of the relation of vomiting to food and a study of the material vomited.

2. Vomiting may be due to intestinal causes of quite the same nature as above or to such other abdominal causes as obstruction, peritonitis, appendicitis, which soon present very distinct physical signs and symptoms of these conditions.

3. It may be, also, reflex from other disturbance, as of the cerebrospinal system or the special organs—from brain disease, from the pharynx, eye or ear, or almost any organ.

4. Vomiting may be central or toxic from an irritating state of the blood acting on the vomiting center, in the same manner as a hypodermatic of apomorphia.

This would include infectious diseases, which soon express themselves by well-known symptoms or rashes, and the vomiting is generally neither prolonged nor excessive, and very frequently consists of but one or two explosive effects.

Among other causes of central vomiting may be included the toxemia incident to kidney disease.

In the vomiting of children it is always wise to follow two rules—to examine carefully the throat, and not to be easily convinced that the cause is local—an irritated or diseased stomach. Very frequently it is not at all of gastric origin.

The stomach, organic brain disease and organic kidney disease may represent the most frequent causes.

G. R. Butler[9] says: "Vomiting is sometimes seen as the only marked symptom of an apparently slight nephritis. In such cases its onset is abrupt, its course intense and its outcome not infrequently fatal."

5. Simple or tuberculous meningitis may present greater difficulties, especially when we consider that vomiting may be rarely the only symptom of such a meningitis till a fatal issue by convulsions. The condition of the pupils, the eye ground, irregular pulse and respiration assist the differentiation.

In the periodical vomiting which occurs in cases of tabes dorsalis in adults, a possible history of syphilis, the symptoms of station and patellar reflex and ocular symptoms are so characteristic that they can not be confounded and are mentioned only because articles on "periodical vomiting" refer to such neuroses, which are in no way related to cases of periodical vomiting now considered.

Other attacks of periodical vomiting, with abdominal pain, in adults, have been described in literature, but have none of the marked features of these attacks. Still other conditions described as periodical attacks of vomiting in children are very plainly recurrent bilious attacks, in children careless of diet and hygiene, which have been described.

That the phenomena of cyclic vomiting is due to some toxic blood state seems certain, the exact nature of the toxin remaining in obscurity. It may be allied to the unknown toxin of uremia. It is probably of the xanthin series, one of the uric acid group. The attacks resemble the so-called "uric acid storms" described so graphically by Haig, in that the extremities are cold, glandular secretions decreased and scanty urine and large excretion of substances regarded as uric acid.

The attacks differ in the fact that there is no headache or mental depression, and in the character of the pulse, which is not usually of high tension, but weak and irritable like the pulse of toxin poisoning. It is a pulse which can in no way be explained by the tension caused by impeded capillary circulation, which a colloid state of uric acid may occasion. The symptoms are not so much of uricacidemia and the clogging of capillaries as of some toxin possibly of the uric acid series acting directly on the vomiting center.

The impressibility of certain nerve centers, and the difference of susceptibility of particular nerve centers in particular individuals help to explain the phenomena. It is well known that toxins of the alloxuric group irritate particularly nerve centers, and that uric acid products are particularly injurious to nerve tissues, and we may be warranted in the assumption that some of these chief products of waste metabolism irritate the vomiting center in these gastric neuroses, though we do not know the steps of the biochemic process or the exact toxin. In all three cases there is a neurotic or gouty, or a neurotic and gouty family history.

In all three cases the presence of amorphous urates and uric acid crystals in excessive proportion to the febrile disturbance point to a toxin of the uric acid series. In each instance the alimentary tract and accessory glands seemed fairly normal and the autointoxication seems not of intestinal origin, but cellular, with perhaps faulty kidneys.

When we consider how little we know of the toxin of uremia—a condition more pronounced, more serious and more frequently at hand for study—we may be less chagrined at our lack of knowledge of the toxin in this gastric neurosis.

TREATMENT.

The treatment is sedative and eliminative. The indications are: First, to lessen the irritability of the vomiting center; and second, to eliminate. The first has been attempted by bromids and chloral by the bowel, which is not satisfactory. Nothing is so effective as hypodermatics of morphin and atropin in severe cases. In less severe cases cocain and Fowler's solution lessen irritability both of the vomiting center and the peripheral nerve endings in the stomach wall.

Elimination is best accomplished by calomel, dry on the tongue in small and frequent doses, in conjunction with high saline enemas.

Gavage has effected good results in young children. No other diet than some of the liquid peptonoids in form should be attempted for several days. In the interval there is indicated abundant fresh air and careful skin activity, exercise short of fatigue, an avoidance of nervous strain and child worry, with an antiuric-acid diet.

CONCLUSIONS.

In conclusion I wish to emphasize:

1. The importance of being watchful, on one's guard for the vomiting of this gastric neurosis, distinguishing it particularly from bilious vomiting and the vomiting of kidney disease and reflex vomiting, as of brain disease.

2. In children of gouty and neurotic history the three cases reported point to a toxin allied to the uric acid series as the possible blood irritant causing the vomiting.

3. The importance in severe cases of hypodermic injection of morphia and atropia in conjunction with elimination, by high saline enema; by gavage; and in extreme cases, hypodermoclysis and even intravenous injections of saline solutions.

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9. Glentworth, Reeve, Butler: Diagnosis of Internal Medicine, 1901.

Special Article.

THE TYPHOID EPIDEMIC AT ITHACA.

(By Our Special Commissioner.)

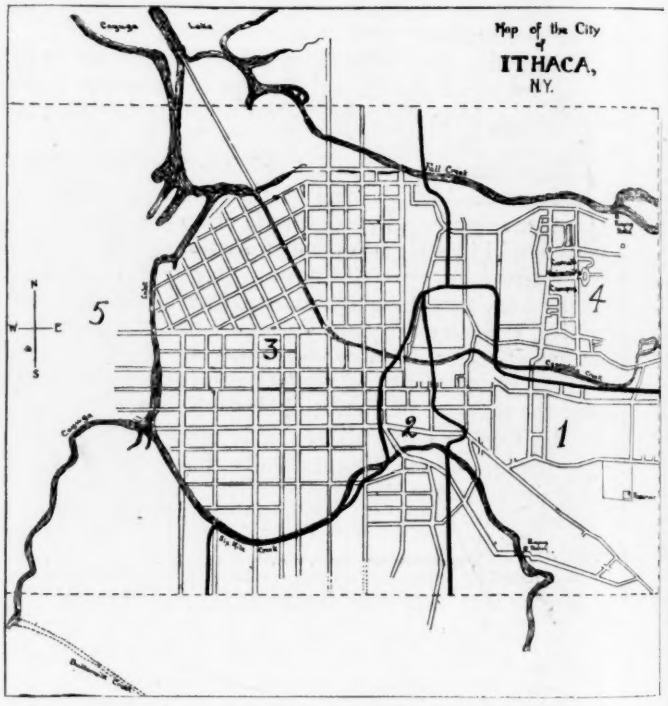
II.

THE DIVISIONS OF ITHACA IN RELATION TO TYPHOID INCIDENCE.

Very early in the history of the outbreak it was suspected that the public water supply was in some way implicated. With respect to the sources of the water used for domestic purposes the town may be conveniently divided into five different districts: 1, Receiving water exclusively from Six Mile Creek;[1] 2, receiving a mixture of water from Six Mile Creek and Buttermilk Creek in the proportion of 1:1; 3, receiving mixed water from Six Mile and Buttermilk creeks with an excess of the former in the proportion of about 3:1 or 4:1; 4, receiving water from Fall Creek; 5, dependent on wells, springs or sources outside of the regularly pumped supply.

The distribution of the cases of typhoid fever in the town at once drew attention to the significant incidence of the infection. The main city water supply is derived in part from Six Mile Creek alone, and in part from mixture of this water with that of Buttermilk Creek. The water from these sources (Districts 1 to 3) is furnished by the Ithaca Water Company, a private corporation. The Fall Creek source, which is controlled and managed by the university authorities, supplies the university buildings, some fifty-two houses on or near the campus, including six fraternity houses and about seventeen houses at Cornell Heights to the west of Fall Creek. This section of the town has remained exempt from typhoid fever, except in the cases of a few individuals, who resided on the campus but boarded elsewhere, and one student in Sage College, who is known to have drunk water in other parts of the city. With the one exception noted, the women students of Sage College, numbering over 200, have not been affected. The same is true of the students in the several fraternity houses that are supplied with Fall Creek water. The larger part of the town, however, especially that furnished with water directly from Six Mile Creek, has suffered severely.

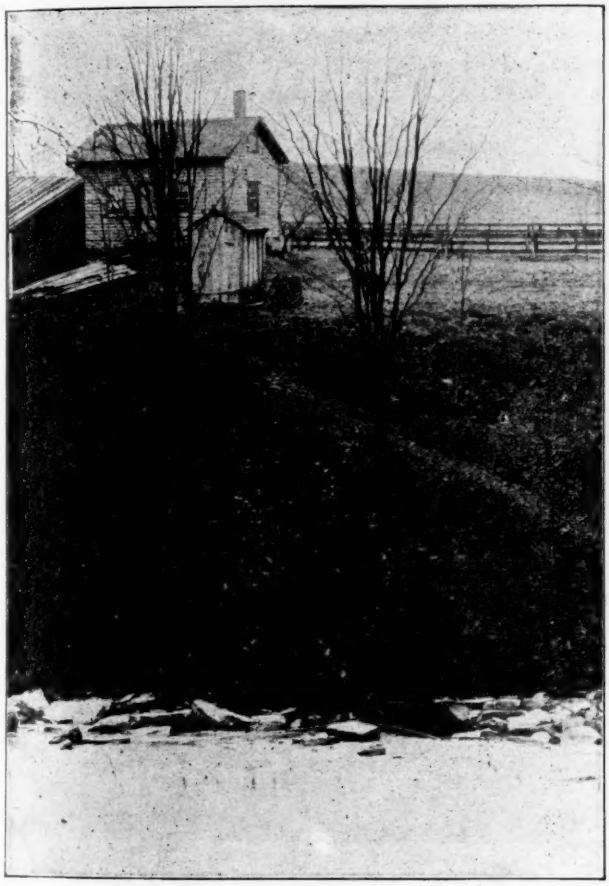
It appears from the meager facts that could be learned concerning the distribution of cases within the infected area, that the district receiving exclusively Six Mile Creek water was much more severely affected than the rest of the town. This section, the East Hill district (1), which is thickly dotted with student boarding houses, has borne the brunt of the epidemic. In the district supplied with the mixed water from Six Mile and Buttermilk creeks, the proportion of cases appears to be smaller than on East Hill. In the outlying parts of the town, supplied with well water, the number of cases is said to be relatively small, although it is extraordinarily difficult to obtain precise information on this and all other points that require the consulting of accurate records. I have also found it impossible to obtain definite information concerning the distribution of population within the specified areas. The population supplied from Fall Creek numbers probably at least six hundred; and that supplied with mixed water from Buttermilk and Six Mile creeks is considerably larger than that supplied from Six Mile Creek alone; but beyond these facts there is little to assist the investigator in determining the proportion of cases to population. In view of the compact character of the town, and the opportunities for using infected water throughout most of its territory, it is certainly rather surprising that there have not been more cases of incidental infection among the population supplied by Fall Creek. If the disease had been distributed evenly over the city in proportion to the population this district should have had at least 30 indigenous cases, whereas it is not known to have had one. The fact that the section receiving Six Mile Creek water but no water from Buttermilk Creek (1) has been



1. First pumped to a small reservoir containing less than a day's supply.

seriously attacked, and that the section supplied with the mixed water from these two sources has also suffered, points unmistakably to Six Mile Creek as the source of infection, although the possibility that Buttermilk Creek was simultaneously infected can not be excluded.

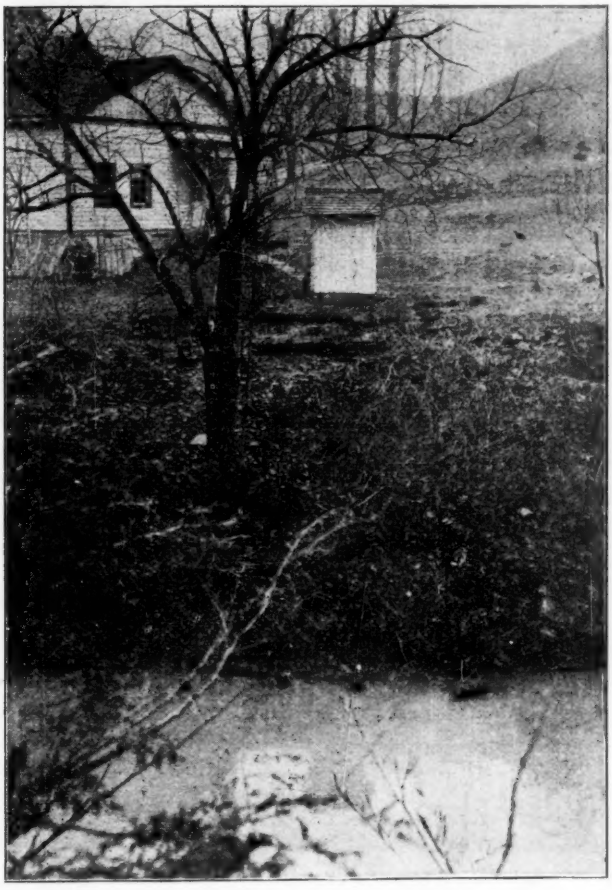
As regards the especially heavy incidence of the disease on District 1 there are several ways in which this might be explained. In the first place, the fact that in this district the Six Mile Creek water alone is used would seem to indicate both a more direct and a quantitatively greater infection. A second factor that has undoubtedly played a part is the age distribution of the population in this district. The large number of university students dwelling in the East Hill boarding houses constitutes an



age group possessed of maximum susceptibility to typhoid fever. It is well known that the greatest susceptibility to this disease is between the ages of 15 and 25, and that consequently a population of college students presents a mass of material of peculiarly inflammable nature. A third factor that may possibly be important is that the student population is not composed of permanent residents and hence had been relatively untried by typhoid infection. It is probable that many of the inhabitants of Ithaca, living in the lower town, had at one time or another suffered from mild or unrecognized cases of typhoid fever, the so-called "Ithaca fever," or "typhoidette," to use the term of some of the French epidemiologists (Lorain). There is a certain amount of evidence that exceedingly mild infections, often not recognized as specific, confer immunity to subsequent attacks of typhoid fever. On this ground, it would not be at all remarkable if the disease had raged more severely in the virgin soil of the student boarding houses than among the previously exposed and presumably somewhat seasoned inhabitants of Ithaca. Probably all of the factors mentioned have contributed somewhat to the extraordinary prevalence of the disease among the student population on East Hill.

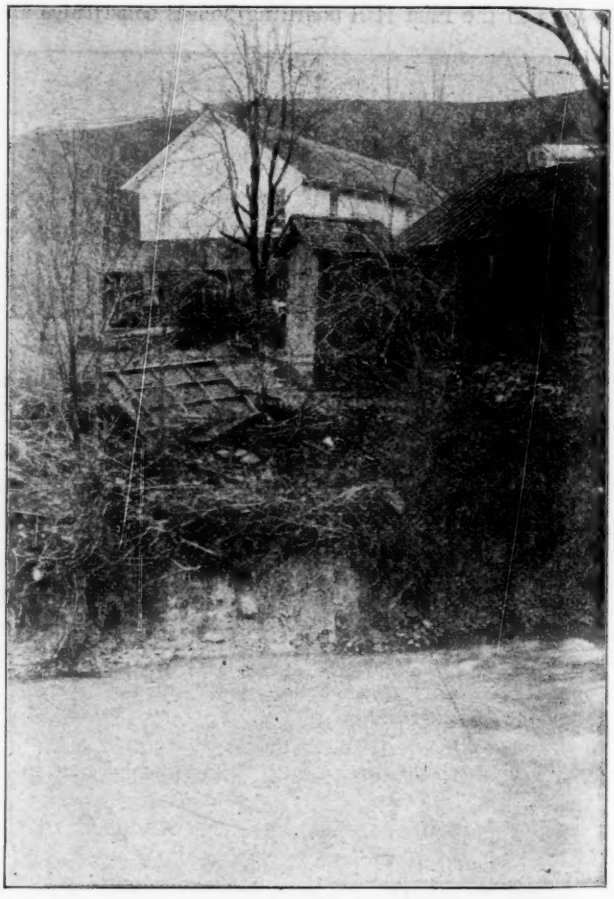
CHARACTER OF THE WATER SHEDS.

The conditions surrounding the several sources of water supply are particularly significant. Six Mile Creek, which affords the major part of the town's supply, has a watershed with an area of about 48 square miles.



The watershed is slightly more than ten miles in length and is very narrow; the numerous small and rapid feeders of the main stream traverse for the most part short distances. The stream is not a large one; the average daily flow during January and February, 1903, is estimated at five to six million gallons, and during a large part of the year it is much less than this. Without a storage system, it does not alone suffice for the town supply (two to three million gallons daily). The population on this watershed may be roughly estimated at 2,300-2,500. Most of these inhabitants live in scattered farm houses, although two small village communities, Brookton and Slaterville, the latter a summer "health resort" with several small hotels, are within this area. Observation of the conditions prevailing on this water-

shed at the time of the writer's visit showed that many of the houses are situated on the very border of Six Mile Creek or its tributaries, and that, in many instances, there is abundant opportunity for fresh drainage from manure piles, pig pens and outhouses to pass directly into the stream. The accompanying illustrations[2] represent views taken along the banks of Six Mile Creek in the village of Brookton, four miles above the point at which the Ithaca supply is pumped. In certain places the slope of the ground is such that the drainage from outhouses and privies can pass freely into the stream. The current in Six Mile Creek and its tributaries is swift, and at those seasons of the year when the streams are full, it



is possible for drainage from almost any part of the watershed to arrive at the water intake within three or four hours after entering the stream.

Buttermilk Creek, which at present furnishes part of the public supply, was not visited by the writer, but is said to have a watershed of very similar character to that of Six Mile Creek. It is stated to be in somewhat better condition than that of Six Mile Creek, principally because the stream is not so long. A report on Buttermilk Creek, made Feb. 16, 1903, by official inspectors of the local board of health, contains the following suggestive items among many others of a similar character:

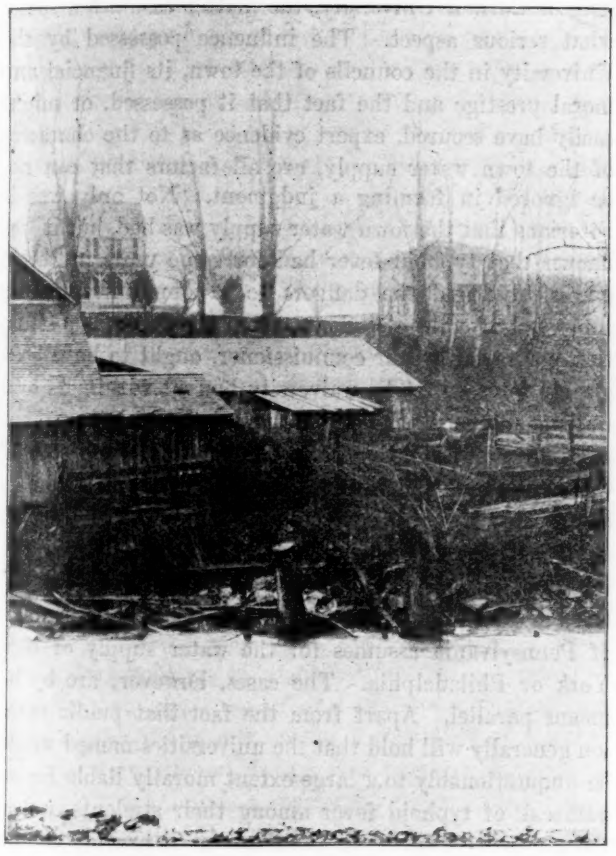
> The next residence on the right bank of the stream is that of Mr. E., standing on a tributary. The closet is within ten feet of the tributary, and the hen house and hog pen stand about twenty feet from the tributary, with the slope toward the tributary. . . .
>
> At the residence of J. McF. the closet is within fifteen feet of the stream, with the bank sloping steeply into the water; at this place there are five cases of scarlet fever, two of whom are recovering. The barn and pigsty stand on the bank of a short tributary to the stream, and drain directly into the main stream. . . .
>
> At the residence of J. G. the closet is directly on the bank of the stream, with no vault underneath.

The watershed of Fall Creek, from which the water supply of the university campus and some closely contiguous territory is derived, is, if anything, in a less satisfactory condition than that of Six Mile Creek. In proportion to the size of the watershed and length of the stream, the amount of pollution is greater than in either of the other sources. About one mile above the water intake is located the small hamlet of Forest Home, where the opportunities for direct and rapid drainage into the stream are even more conspicuous than at Brookton. If an unwatched or improperly-cared-for case of typhoid fever had developed at Forest Home, infectious material might conceivably have passed into the university supply with great promptitude. No greater safeguards appear to have been thrown around the Fall Creek supply than around that of Six Mile Creek. In fact the general surroundings of Fall Creek are apparently of a much more dangerous character.

2. These views were taken last week especially for THE JOURNAL and to accompany this report. They describe more graphically than words the true conditions. Other photographs were taken but the ones here reproduced are believed to be amply sufficient.

QUALITY OF THE WATER.

It has long been a matter of common knowledge in Ithaca that the town water supply was not above criticism. Many citizens have not used the public supply for years for drinking purposes. The use of boiled water or of spring or artesian well water has been general; such measures of protection have been often resorted to by the advice or on the warning of the Ithaca physicians, many of whom appear to have been alive to the situation. The writer has been told that the use of the raw water for drinking has been known in certain families to bring on attacks of "bowel complaint." These attacks ceased if a different water were used, only to reappear when the drinking of raw water was resumed. More than this,



analyses of the town supply have shown on several occasions that the water contained objectionable or suspicious constituents. A report was made to the Ithaca board of health, March 11, 1902, by Professor Chamot of Cornell University, in which, after a detailed report on the results of examination of the water, the water was pronounced "unfit for drinking purposes." It is stated that analyses of the Fall Creek water have in general shown somewhat greater pollution than the other sources.

Long before the present outbreak, therefore, the facts were at hand concerning (1) the excessive prevalence of typhoid fever in the town, (2) the character of the several watersheds draining into the streams which were the source of the town's supply, and (3) the quality of the water itself and the effect of its use on the health of citizens.

(To be continued.)

Careless Prescribing.—I have been astonished at the original prescriptions of men who, in all branches of their profession except therapeutics, were quite capable. They seemed to have no knowledge of the incompatibility of drugs. A few instances may suffice to illustrate this. Cocain and borax are often ordered in the same mixture, with the result of forming an insoluble precipitate of cocain borate. Ammonium carbonate is frequently ordered by physicians in the same cough mixture with syrup of squills, which contains acetic acid, with the result that a chemical reaction takes place liberating carbon dioxid, and the gas given off startles the patient by forcibly expelling the cork or even bursting the bottle. An acid and an alkali should only be mixed when a new product is desired. How frequently iron is ordered mixed with substances containing tannic acid, with the result of forming iron tannate or ink. —H. R. Purdy, before the N. Y. State Med. Assn.—"Amer. Druggist."

That Decreasing Birth Rate.—Statistics continue to appear on this subject in the press of the country. An editorial in THE JOURNAL, Feb. 21, 1903, page 521, expressed doubt as to the fact of an actually decreased birth rate Apropos are the statistics presented by the "Northwestern Christian Advocate," which seem decidedly at variance with some previously referred to in our columns. The "Advocate" says that the analysis of the statistics on births compiled by the twelfth census does not bear out the contention that the birth-rate in the United States is decreasing. At least the figures, based on what the compilers of part 1 of the vital statistics say are imperfect data, indicate that there was a slight increase in the birth-rate for the decennial period of 1890-1900 over that of 1880-1890. Not the least interesting feature is that the greatest increase occurred in the northeastern or New England group of states, which includes New York (compare with THE JOURNAL, March 14, page 722). In this division the increase was 1.7 per 1,000. An analysis of these figures, including the average annual excess of births over deaths for the period from 1890 to 1900, shows the following results.

	Birth-rate 1890.	Excess births over deaths.	Birth-rate 1900.
United States	26.9	17.7	27.2
Northeastern division	22.1	11.5	23.8
Central and northern division	26.8	18.4	25.9
Southern division	30.1	19.8	31.5
Western division	22.9	18.7	22.8

The Diabetic Flour Swindle.—According to a Massachusetts State Board of Health report, of thirteen samples of diabetic flour, or flour prepared for the use of diabetics and purporting to be free from starch, only three samples, the product of one manufacturer, were found to be free from starch; the other ten, or nearly 80 per cent. of the samples collected, were found not only to contain starch, but that in large quantities, seven being found with 60 per cent. or more of starch. These were in reality but little better than whole wheat flour, and were sold at prices varying from eleven to fifty cents per pound. There are probably few of the better informed of general physicians who would not say, "All the better for the patient, so far as his health is concerned," because bread that does not contain starch doubtless injures him more than the best-made, well-baked "crusty" wheat bread. There seems to be a deal of indefiniteness and a vast deal of difference of opinion among physicians as to these questions of bread and diet for diabetic patients. These differences do not show themselves so much in the text-books, where there is general uniformity of advice. But when it comes to getting his bread the poor diabetic finds that the physician knows little or nothing as to the chemic and digestive qualities of the breads he can buy. The matter is left without oversight to the bakers and commercial agents, precisely where it should not be left, and much to the perplexity of the patient. No wonder that the diabetic's health fails when he tries to digest some of the "bread" he is advised to get! After trying it he can but think, if he does not know that his disease is a modern one, that the origin of the scriptural injunction against giving a stone when bread is asked for arose from the experience of his poor ancient brethren in trying to live while conforming to the scientific diet-list of those days.—"American Medicine."

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THE RESPONSIBILITY AT ITHACA.

There was a time when the epidemic of typhoid fever at Ithaca would have been looked on as a visitation of God; at the present time it must be recognized as a failure on the part of some persons to do their duty. Sometimes there may be an excuse for not recognizing signs of danger, but not in this instance, for they were too apparent; even the pictures obtained by our commissioner and presented in this issue prove this. The situation as depicted in his report is of no uncertain character.

The Ithaca Water Company, which owns and controls the water pipes, pumping stations and their connections, and presumably also certain portions of the drainage area, can hardly be absolved from a share in the responsibility for the disaster. The condition of the watershed furnishing the main supply appears to have been so patently dangerous that the most superficial observation could detect the mischievous possibilities that flaunted themselves along the banks of the stream. A private corporation, although primarily organized, it is to be presumed, for purposes of private or corporate gain, nevertheless incurs certain responsibilities which can not be lightly disregarded in undertaking to distribute a commodity so indispensable as drinking water. It is possible that even if the banks of Six Mile Creek had been carefuly patrolled, and if all nuisances along its banks had been abated just as far as was practicable, the epidemic might still have occurred. The fact, however, that such obvious and elementary precautions appear to have been largely, if not altogether, neglected, throws a heavy weight of responsibility on the water company.

The city authorities of Ithaca must likewise not be surprised if they receive from the world at large their share of the blame for the outbreak. Although spasmodic efforts seem to have been made from time to time to cope with the water situation and plan for its betterment, there appears to have been no concerted and definite plan of action which could result in efficient treatment of the problem. There is unfortunately only too much reason to believe that many American municipalities are in a position very similar to that of Ithaca in respect to an unguarded supply of surface water, and are allowing themselves to drift along from year to year in the easy assurance that nothing serious will happen. In most cases nothing does happen other than an excessive tribute paid each year in the deaths of young men and young women from typhoid fever. Occasionally, however, some unusual occurrence, like the one at Ithaca, will cause an amount of illness and death so great as to focus the eyes of the whole country for a time on the afflicted community. It would perhaps be unjust to condemn too severely the negligence or indifference which has the supreme misfortune to be punished by a particularly violent outburst of disease, so long as it is known that a very large number of municipalities are taking similar risks, and, safe in the happy doctrine of chances, are likely to escape similar retribution.

In turning to the possible responsibility of the authorities of Cornell University, the matter assumes a somewhat serious aspect. The influence possessed by the University in the councils of the town, its financial and moral prestige and the fact that it possessed, or might easily have secured, expert evidence as to the character of the town water supply, are all factors that can not be ignored in forming a judgment. Not only was it notorious that the town water supply was bad, but it was known that typhoid fever had for some years prevailed excessively; and the dangers to a community largely composed of college students, from the deplorable situation portrayed by our commissioner, ought to have been clearly foreseen. The university housed within its own walls many men who would have informed it without ambiguity or hesitation as to the existing situation and the catastrophe which might some day not unreasonably be expected if nothing were done.

It has been urged in defense that Cornell University incurred no more responsibility by allowing such conditions to exist than Columbia University or the University of Pennsylvania assumes for the water supply of New York or Philadelphia. The cases, however, are by no means parallel. Apart from the fact that public opinion generally will hold that the universities named would be unquestionably to a large extent morally liable for an outbreak of typhoid fever among their students, unless the authorities do all in their power to provide a pure water supply, it can not be said that the responsibility of a university in a great city is at all in the same category with the responsibility of a university in a small town, which it can largely influence or even, if necessary, dominate. The apparent neglect by the Cornell authorities of their responsibilities is further shown by the facts given regarding the university's own water supply, which, although not incriminated in the present outbreak, does not appear to have been surrounded by any substantial protection. We are reluctantly forced to believe that the Ithaca epidemic will always be looked on as an instance of oversight and neglect on the part of those in control of a great educational institution. Instances of amazing indifference and ignorance on the part of private water companies and municipal officials are not as uncommon as they should be, but that the

authorities of a great university should fail to realize their responsibilities in such an important matter may well give rise to more than passing wonderment.

THE SANITARY PROBLEMS OF THE PANAMA CANAL.

There is no great enterprise which tends to revolutionize the commercial channels of the world that has not its important sanitary aspects. Just at this time the Panama Canal seems a reasonable certainty in the not very distant future and the water route to Eastern Asia will be largely diverted from its present channels. The possibilities of this fact as regards health and sanitary matters are really serious and important.

In a discussion at the London Epidemiological Society, February 25, Dr. Patrick Manson took up this subject, calling attention to the diffusion of disease by insects, especially the mosquito as the intermediary host of the specific hematozoa, with special reference to the question of yellow fever as it concerns the Panama Canal. At the present time yellow fever is a disease confined particularly to the east coast of America and a part of the west coast of Africa, occasionally, however, passing across the isthmus routes to the Pacific ports of Central America. Thus far the Orient has escaped. With the building of the canal there will be many thousands of oriental laborers employed. They will come by the shiploads from Japan and China and return with whatever infections and diseases they have acquired in their more or less prolonged residence along the unsanitary isthmus. Yellow fever is a disease which, while not constant or indigenous on the isthmus, is yet comparatively frequent there on both sides, and its prophylaxis will be hardly less important than that of malaria, which in its pernicious form has there cost so many lives in the construction of transportation works, railroads, etc., in years past. The stegomyia is almost a universally distributed mosquito throughout the tropical and subtropical regions of the earth; the means for the diffusibility of the disease, therefore, are supplied. This mosquito can live as long as 75 days, and a voyage of eight or ten weeks across the tropical Pacific would be no surety against its transmission. There have been cases reported where ships have carried yellow fever without having any cases of it aboard. The only security is in thorough fumigation of vessels and destruction of any mosquitoes that may be secreted in their recesses. Dr. Manson suggests an international commission of all the civilized powers to act on this matter. Inasmuch as this would imply a certain amount of police power, it is doubtful whether the proposition is a thoroughly digested one. But certainly something should be done to prevent the spreading of this pest into regions where it has not before existed. He also suggests a clearing and absolute drainage of the country within half a mile of the canal on each side as a necessary item of prophylaxis. It is doubtful whether all this could be done at once, but much can be done, and with wideawake port sanitary authorities it does not seem that transmission of the disease can not be prevented even without the complete and most thorough methods he suggests.

There is still another point to be considered in connection with the rapid and frequent transit between Asia and tropical America which the canal insures. There is an equal chance for the introduction of Asiatic pests and scourges to this continent. The plague is almost endemic in some of the eastern countries, and cholera is still more so. We know what plague can do on the west coast of Mexico from the little epidemic that occurred at Mazatlan and one or two other places. Any wholesale introduction of this disease, which is just as possible as the introduction of yellow fever into Asia, might produce consequences which would be worse than anything we have yet seen or imagined.

The building of the canal itself involves sanitary problems of a serious character. In some respects the Nicaragua route would seem to have been a less pestilential one, though its inconveniences in other respects seem to have decided the matter against it. The west coast of Central America at least is comparatively healthy. On the east coast the severer forms of malaria are more or less prevalent. The subject is a timely one for us to consider.

It is not out of place also to reiterate what we have said before in regard to having a well-qualified medical man among the commissioners, who shall have full and complete charge of all sanitary arrangements and work. There is no doubt that there will be a physician in charge of this branch, but unless special effort be made to have such full powers allowed him, this position will be a vexatious one, and his views will be carried out or not as it pleases those who may be above him. Now is the time for action, as those men who are to have charge of the work will soon be appointed by President Roosevelt.

CYTOTOXINS AND THE PATHOLOGY OF PREGNANCY.

Among the most interesting of the researches on cell toxins is that in which the exciting substance is placental tissue. It is of special interest, first, because there is a possibility that some features of the pathology of pregnancy may be explained by the results obtained, and, second, because the practical use of the serum so obtained seems nearer than is the case of many of the other cytotoxic serums. A reason for this hope lies in the fact that placental tissue is the tissue, par excellence, that can be obtained from human beings in fit condition for use in immunizing animals. With the exception of the blood the placenta is practically the only human substance available for this work. W. Liepmann[1] has already made a number of experiments showing that the serum of rabbits immunized with human placenta will produce a precipitate when added to clear human serum that has stood for a time in contact with placental tissue. As he was able to produce a similar precipitate with blood serum from the umbilical cord of infants, and also

1. Deutsche med. Wochenschr., 1903, xxix, No. 5.

with retroplacental blood serum, he concludes that certain constituents of the placenta enter the blood stream. The practical bearing of this lies in the possibility that here is discovered a new method for diagnosing pregnancy. It is well known that placental cells enter the blood of the mother during pregnancy, for they have been found as emboli in the lungs, kidney and elsewhere. Liepmann promises to investigate this subject further.

In connection with the pathology of pregnancy we have the old theory that eclampsia is due to products of placental disintegration, either soluble substances or the cellular emboli above mentioned. Some of the earlier investigators of placental toxins stated that they found injections of human placenta toxic to animals, but Liepmann, who carefully excluded bacteria, did not get any such results. Albuminuria had been noticed in many of the animals and considered of significance in relation to eclampsia, but he considers this a simple physiologic albuminuria, such as is found when foreign proteids are introduced in large amounts into the circulation. However, if there is any basis for the placental origin of eclampsia, the use of serum of animals immunized with placental tissue may prove of therapeutic benefit. Hence, a study of the effect of placental serum on pregnant animals will be of interest, but let us hope that a new abortifacient has not been discovered.

Ascoli[2] has studied particularly the relation of cytotoxins to eclampsia. Rabbits were immunized with guinea-pig placenta, and their serum, although not toxic to pregnant guinea-pigs when injected subcutaneously or into the veins, caused symptoms that seemed to him much like those of eclampsia when injected under the dura. Controls showed that normal serum had no such effect, and rabbits did not suffer any symptoms from such injections. He suggests that the placental cells that are swept into the circulation during pregnancy may cause the production of cytotoxins leading to eclampsia. This reasoning from animal experiment to human disease is open to the objection so often advanced in cytotoxic work, that the serum used in the guinea-pig was from the rabbit, and was shown to have no effect on rabbits. In the case of eclampsia there is no question of foreign serums, and there is a wide gap between "autocytotoxins" and "heterocytotoxins." Of course, we must bear in mind that in eclampsia it is not at all impossible that the fetus plays some part.

To us the most suggestive feature of all this work has yet to be pointed out; that is, the use of this particular serum in the treatment of tumors. The proposition that tumors might be influenced by cytotoxic serum was the first outcome of cytotoxic work, but the development of this very important application has been prevented by the impossibility of procuring sufficient tumor tissue with which to immunize the animals that should furnish the serum. With the placenta it is different, for, first, this tissue can be readily obtained, and secondly, tumors of placental tissue differ from ordinary tumors in resembling more the parasite as it attacks the host. Syncytioma malignum is fortunately rare, but extremely malignant. It is often diagnosed from scrapings or operation before great inroads have been made. The tumor develops from a tissue that is practically foreign to the host, and in this way resembles a parasite. The parent tissue is not of vital importance; if we could prepare a serum for hypernephroma, for example, we should fear its attacking the normal adrenal structure as well as the tumor, with disastrous results, but there could be no such difficulty in the case of the placenta. For these reasons it seems that placental cytotoxins offer a particularly practical field for study, and that syncytioma may be a good point at which to attack the problem of serum therapy of cancer.

2. Centralblatt f. Gynækol., 1902, xxvii, No. 49.

MEDICAL JOURNALS AND WEEKLY EDITIONS.

The *Allg. Med. Ct.-Ztg.* of Berlin is now in its seventy-first year, and has been published heretofore two or three times a week. It now announces that a single weekly edition will be issued henceforth. The *Archives Gén. de Médecine* has changed from a monthly to a weekly with the new year, the eightieth of its existence. The Italian *Riforma Medica* has long proudly boasted that it was the only medical daily published in the world. It, too, has fallen into line with the weeklies, and the nineteenth volume, commencing with the current year, brings it as an enlarged weekly journal. The *Bulletin Médical* of Paris is about the only one of our exchanges that still clings to two editions a week. The *Gazette Hebdomadaire,* which belied its title by publishing two numbers a week, ceased publication with the close of 1902, its forty-ninth year. One of its features will be much missed unless inaugurated in some other journal. We refer to the lists with abstracts which it published of the medical theses presented at the French universities. The Paris *Gazette des Hopitaux* has three editions a week, and also the Italian *Gazzetta degli Ospedali,* but in the latter the original communications are restricted to the Sunday issue, which appears with a colored cover. The journal is thus practically a weekly with two supplements for abstracts. One of the changes brought by 1903 in our exchanges is that the letter C is being tabooed to a certain extent in Germany. Our familiar friends, the weekly *Centralblatts,* are *Zentralblatts* now, *Medicin* is *Medizin,* and so on. This seems to be merely another evidence of the tendency displayed by the Germans to refrain from using the terms which are current in science the world over and which are gradually developing an international scientific language. The Germans are serene in their consciousness that no scientist can work without a knowledge of what is being done in Germany in his line, and consequently he is obliged to put up with whatever home terms they may choose to use. They care nothing for the expense of dictionaries and waste of time which they impose on the scientist with the word *Wurmfortsatz,* for example, where all the rest of the world says *appendix, angeboren* instead of *congenital,* or *Speiseroehre* for *esophagus,* etc. In fact, we suspect they are inclined to chuckle over the

difficulties they place in the path of the scientist of another nationality. It serves him right for not having been born a German.

CÆLUM, NON ANIMUM MUTAT.

Change of locality seems to have little effect on the ill luck of a noted biologist recently transferred from Chicago to California. He is, it is said, greatly troubled by the fact that his utterances are still picked up by reporters in the most sensational way from time to time. In fact, there is a very short interval between them. One day it is announced in the newspapers that the actual secret of life has been found in cyanid of potash, again it is calcium salts that have an importance which has never been before attributed to them in the vital processes. The last announcement is that the revelation of the nature of life itself is probably within our reach. All that we have to do to understand it completely—and he seems to think this will be done—is "to control it unequivocally by physical and chemical means, or to repeat it in all detail on inanimate matter." This is a large contract. There is a sort of wisdom which consists in appreciating our limitations. A wisdom that is lacked by the antivitalist who can not willingly believe that anything mysterious exists or that it is beyond his intellect. Our modern would-be Prometheus says:

> We can not allow, however, that there is any obstacle to our complete control, and, in consequence, to our knowledge, of life phenomena. Every one, I believe, who recognizes the control of life phenomena to be the greatest problem of scientific investigation will come to the same conclusion. Authors who have come to the opposite pessimistic view have placed too great faith in some hypothesis or have fallen victims to a poor or wrong interpretation of the facts. It is self-evident that the pessimistic view can only hinder, but never further, the progress of science.

What hindrance is it to research for one to believe that thus far nothing has been done to actually or satisfactorily solve the mystery of life and that it is possible that it is beyond our reach? There are such things as infinity and eternity which have to be considered—absolute ideas that can not be dispensed with, and yet absolutely ungraspable by the human intellect. The phenomena of life itself seem in some respects to be among those of which we may be unable to fully obtain the secret. It would be more discouraging to think that we can solve all questions and research thus come to an end, than to believe that there is always to be something ahead of us. The so-called optimism that claims that the whole universe is to be included within the horizon of our senses seems to us little less than irrational, and what is here called pessimism seems altogether more becoming to our limited intellect. It is not pessimism, however, to believe that with our better developed intellects of one thousand years from now there will be as much prospect of future discovery as at the present time.

HYDROPHOBIA.

The recent death of the eight-year-old child of a prominent physician in New York ought to be sufficient to convince the most rabid oppositionist of the existence of the disease that it is really a formidable entity. The case was seen by some of the best specialists in New York, the diagnosis confirmed and the history of the case thoroughly reviewed. Of course, those who believe that dogs should suffer no inconvenience though human beings may die, as we see in the tone of the antivivisectionist publications, would be satisfied with nothing, but at least such physicians as have criticised the views of those who believed in hydrophobia ought to accept this evidence. The important thing about it, however, is not the mere question of the existence of hydrophobia, but the increasing prevalence of the disorder. There seems good reason to believe that there are more cases in late years than there formerly were. This is not difficult to explain when we remember that hardly anything has been done to check it; that mad dogs have existed from year to year, biting others; that restrictive measures like muzzling are in most cases neglected, and that the public has been criminally indifferent on the subject. In England up to a year or two ago the dog-muzzling law was enforced, and as a consequence hydrophobia is almost unknown in that country. We have a larger territory to guard, and it would be more difficult to keep the disease out of any one single section than it is to keep it out of an island where all commercial routes are by water, through well-known channels, custom houses, ports, etc. But still much can be done, not only in our cities, but also in the rural districts, if the popular notions about dogs were only somewhat modified. They are not the friends of humanity in the long run that they are said to be, and there is a vastly greater number of them in existence than is justified by any requirement or good policy. The poorer the family the more dogs, as a rule, in the rural districts, and the greater the risk when rabies occurs among them. In the far north where dogs are useful domestic animals rabies or something so similar that it is practically identical, decimates the packs annually, and is recognized by the natives and duly feared. There are no records, of course, among the Eskimos, of any human beings having suffered there, but there is little doubt that such has been the case. In some countries, like Australia, it seems never to have been introduced. There is ample proof that it is a preventable disease and it would be well to bear in mind this fact, and insist on greater care in enforcing the taxing and muzzling of dogs, even to the extent of appreciably diminishing their number. The loss of a single human life from hydrophobia is of more importance than the death of thousands of canine quadrupeds.

Medical News.

CALIFORNIA.

Personal.—Dr. Elliott H. Woolsey, Oakland, and wife sailed on a trip to Japan, China and the Philippine Islands, March 11. He expects to return in about six months.

Quarantine Lifted.—As no new cases of scarlet fever had been reported at Marysville for ten days, the regulations prohibiting public gatherings were suspended March 11, and the schools reopened March 16.

Hospital Election.—The Sequoia Hospital Association (Eureka) has elected the following officers: President, Dr. Jay L. McLaren; vice-president, Dr. William H. Wallace; treasurer, Dr. Rae Felt, and secretary, Dr. Charles C. Falk.

Savage Amendment Fails.—The senate, by a vote of 18 to 17, defeated Senator Savage's bill to amend the medical practice act by taking the power of appointing the State Board of Medical Examiners from the state medical societies and vesting it in the governor.

"Divine Healer" Arrested.—John Miller, calling himself "Dr. Miller, the Divine Healer," of Bakersfield, was arrested, March 4, charged with practicing medicine without a license and released under a bond of $50. He failed to appear March 6, his bond was forfeited and he was arrested and placed in jail.

ILLINOIS.

Beverly Farm Improvements.—Dr. William H. C. Smith, superintendent of the Beverly Farm Home and School for Nervous and Backward Children at Godfrey, is building a log cabin as a rendezvous for his boys, and also a schoolhouse, gymnasium and dormitory for the children under ten, to cost about $4,000.

Keeley Company Sued.—The Memphis Keeley Institute has brought suit against the Leslie E. Keeley Company of Dwight, for $100,000 for violation of contract. The plaintiffs paid $50,000 for the sole and exclusive use of the so-called chlorid gold treatment in Tennessee, and was to be furnished the medicine at a discount of 40 per cent. The plaintiffs also allege that the defendant sold double chlorid of gold remedies, which were different in their constituent and component parts from chlorid of gold remedies. The drugs "are deleterious and dangerous to health of the patient," says the bill, "bringing about great physical weakness, dilation of the eyes, dryness of the throat, full feeling in the head, often confusion of ideas, impairment of memory and weakness of mental capacity."

Chicago.

Lorenz's Assistant to Locate.—Dr. Friedreich Mueller, former assistant to Dr. Lorenz, has returned to Chicago, and the daily press announces that he will locate permanently here and practice his specialty of orthopedic surgery.

The Worst Over.—Although eleven cases of smallpox were discovered during the week, the belief is expressed by the chief medical inspector, Dr. Heman Spalding, that the "worst is over for this season." The usual features of never vaccinated, disproportionate excess of colored and of children under the school age still obtain. Of the 24 fatal cases during the year, 19 were of children under 6 years of age, while there has not been a single fatal case for years among the vaccinated school population.

The Dead.—During the week ended March 31, 612 deaths were reported, 19 less than for the previous week and 75 more than for the corresponding week of 1902. The 19 fewer deaths are equivalent to a reduction of not quite 3 per cent (2.98) from the rate of the previous week, but the total, 612, represents an excess of 10 per cent. over that of the corresponding week of last year. Pneumonia heads the death-list with 133, and tuberculosis comes next with 62. Heart disease caused 44 deaths; Bright's disease, 34; typhoid fever, 13; influenza, 13, and violence, 40.

Improvement in Public Health.—Indications from the laboratory and reports from physicians and hospitals point to a general improvement of the public health. Influenza is still rampant and is largely responsible for the higher death rate of the winter. It continues to be reported as a fatal complication of consumption, Bright's disease, pneumonia and heart disease among the aged and of the acute contagious diseases of childhood. Measles and whooping cough are still very prevalent and of unusual malignancy, while diphtheria and scarlet fever are decreasing.

Increase in Pulmonary Disease Mortality.—In the report of the Department of Health for the week ended March 21, the following reference is made to the increase in mortality from pneumonia and tuberculosis:

> March 21, there had been registered a total of 679 deaths from consumption and of 1,455 deaths from pneumonia since the first of the year. During the corresponding period of 1902 the respective totals were 619 consumption and 1,095 pneumonia.
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> These figures show increases of 9.6 per cent. of consumption mortality and 32.8 per cent. of pneumonia mortality. And they also show that the excess of pneumonia mortality over consumption mortality—which was 76 per cent. in 1902—has risen to 114 per cent. this year.

INDIANA.

Alexander Again Indicted.—On March 13 the grand jury returned a new indictment against Dr. Joseph Alexander, at whose previous trial on the charge of grave-robbing, the jury disagreed.

School Children Must Be Vaccinated.—The decision of the Appellate Court, March 18, upholding the power of school boards to compel the vaccination of children, will be followed by rigid enforcement of vaccination throughout the state. Dr. Hurty, secretary of the State Board of Health, has detailed his reasons for the belief that the state will be scourged with smallpox unless radical measures are enforced.

The State Morbidity.—The regular monthly reports to the State Board of Health show that influenza prevailed very extensively in February. The type was severe and seemed most frequently to leave an impression on the nervous system. Smallpox was very slightly less prevalent than in the preceding month, there being 889 cases in 59 counties. Bronchitis and tonsillitis were widely spread, and diphtheria increased slightly.

License Revoked.—The State Board of Medical Examination and Registration has revoked the license of Daniel D. Weiser, Bourbon, who failed to appear and show cause why his license should not be revoked. Weiser had an old license, procured prior to the establishment of the present board, by displaying a diploma which he claimed was granted by a reputable college, when in fact it was bought from a diploma mill, and was not a result of study. He applied to the present board at the time of its establishment for a new license and was refused for these reasons. He then went to Michigan. He returned, recently, took the old license to the county clerk and received a new one.

Deaths in the State.—The total number of deaths was 2,677, an annual rate of 13.8 per 1,000. This is a decrease as compared with the same month of last year. Pneumonia caused 339 deaths; tuberculosis, 342; cancer, 92; influenza, 56; diphtheria, 53; smallpox, 50; and typhoid fever, 49. The city death rate was 17.3, which is 3.5 higher than the average rate for the whole state. Exactly the same rate existed in February, 1902. The country death rate was 11.9, which is 1.9 less than the state average, and 1.7 less than in the same month last year. Consumption prevailed more extensively in the cities than in the country, the rate being respectively 195.4 and 137.8 per 100,000. Pneumonia also prevailed more extensively in the cities, with rate of 236.4, and country 190.4. Of the smallpox deaths 43 occurred in the cities, 38 of which were in Indianapolis and 7 in the country. Of the 92 deaths from cancer 44 occurred in the cities and 48 in the country.

Laboratory Bill Vetoed.—The action of Governor Durbin, according to the newspapers, in vetoing the Ogborn state laboratory bill, is receiving severe criticism by members of the medical profession. Some charge, it is said, that personal matters influenced the action of the governor for there was no serious opposition to the bill from any quarter. The bill passed the house by a vote of 77 to 13 and the senate by a vote of 44 to 6. It had the endorsement of the Marion County Medical Society and the State Medical and the State Pharmaceutical Associations. The bill carried an annual appropriation of $10,000 for maintenance. The laboratory was to have been used to enforce the state's pure food law, which at present lies dead on the statute books, while the people of Indiana pay probably not less than $5,000,000 a year for adulterated foods. It was expected that the laboratory, which was to be conducted under the direction of the State Board of Health, would also be used in the early discovery of diphtheria, consumption and other similar diseases.

MARYLAND.

Baltimore.

Alumni Elect.—Mr. B. Howard Haman, LL.B., has been elected President of the General Alumni Association of the University of Maryland, and Dr. Eugene F. Cordell, secretary-treasurer.

Woman Gets High Mark.—At the recent examinations before the State Board of Medical Examiners, the highest honors were carried off for the second time by a graduate of the Woman's Medical College.

Left to Hospitals.—The will of the late Mrs. Lavinia E. Frey leaves $500 each to the Union Protestant Infirmary, the Nursery and Child's Hospital, and the Presbyterian Eye, Ear and Throat Charity Hospital.

Deaths of Last Week.—The number of deaths last week was lower than for several years past, being only 184, an annual mortality rate of 17.66 per 1,000, viz., for the white 14.87, and for the colored 32.97. Eight deaths were from grip, 28 from pneumonia, and 3 from measles.

Medical History.—At the Johns Hopkins Hospital Historical Club, Prof. Henry E. Shepherd delivered an address on "Medi-

cine in Shakespeare," and Dr. Julius Friedenwald brought out the fact that Dr. Philip Syng Physick of Philadelphia discovered and was the first to make use of the stomach tube. Dr. Thomas McCrae spoke on "George Cheyne—An Old London and Bath Physician (1671-1743.)"

The Book and Journal Club of the Medical and Chirurgical Faculty.—At the first meeting for the season, March 26, Dr. Alfred Stengel of Philadelphia, read a paper on "Some Old Instruments and Methods for Treatment of the Stomach. Gastric Sensations Interpreted as Live Animals in the Stomach." Dr. William Osler presented the library with 123 theses of American students at the University of Edinburgh between 1760 and 1810, and Dr. Henry B. Jacobs made a few remarks on "A Century of the Faculty of Medicine of Paris, 1794-1894."

MINNESOTA.

Personal.—Dr. Oscar A. Burton, Albert Lea, will leave in May for several months of study in Vienna.——Dr. Carl J. Ringnell, Minneapolis, has been reappointed a member of the State Board of Medical Examiners.

The Open Door.—A bill introduced in the legislature March 4 allows the State Board of Medical Examiners to grant licenses without any examination to physicians already licensed in some other state which has a standard equal to that of Minnesota. Each applicant for a license must pay a fee of $10, which the board may retain, regardless of the results of examination. It is made the duty of every county attorney to prosecute cases of practice without license whenever requested so to do by the board of examiners or any five of its members.

MISSOURI.

Library to Society.—The widow of Dr Marcus A. Bogie, Kansas City, has given his valuable medical library to the Jackson County Medical Society.

Personal.—Dr. Harry E. Ferrel, St. Louis, has been commissioned first lieutenant and assistant surgeon, N. G. M.——Dr. Moritz F. Weymann, in compliance with a request made by the board of directors of the Central Medical College, St. Joseph, has resigned as president and from the teaching force of the institution. Dr. O. Beverly Campbell was elected president for the unexpired term.

Testimonial Banquet.—The St. Louis Medical Society will give a banquet, April 14, in honor of Drs Simon Pollak, William Johnston, William M. McPheeters and J. B. Johnson, all ex-presidents of the society, and all over 86 years old. Dr. Simon Pollak is the oldest, the banquet being given on his eighty-ninth birthday. A large attendance is assured and the occasion is expected to be a most enjoyable one. Tickets to the banquet will cost $5 each and can be secured by addressing Dr. Frank L. Henderson, Century Building, St Louis.

Damage Suits.—Dr. Charles M. Coe, Kansas City, has been sued for $10,000 damages by Miss Minnie Bell of Saline County, who alleges permanent impairment of health and aggravation of disease by reason of the defendant's carelessness, negligence, etc.——University Medical College, University College Training School, Dr. Flavel B. Tiffany and Louis C. James, Kansas City, are made defendants in a damage suit for $5,000, filed by Mrs. Josephine Duzan, who claims that her husband's death was due to lack of proper treatment on the part of his attendants.

Street-Car Colds.—At a meeting of the St. Louis Medical Society, February 28, Dr. Fayette C. Ewing read a paper on "Street-Car Colds," and offered the following resolutions, which were unanimously adopted by the society:

Recognizing the fact that many colds and diseases of the respiratory organs are acquired by riding in draughty, ill-ventilated, cold and crowded street cars, wherein the element of time conspires to produce a prolonged chilling of the body, terminating in localized congestion and consequent respiratory catarrhal affections, it is hereby declared to be the sense of the St. Louis Medical Society that street car officials should take measures for a more uniform and equable temperature in their cars, with protection against draughts, and especially in such cars as run far out into the suburbs, where passengers must sit still for an extended period of time.

And it is further declared that such lines of cars as make long runs, compelling long-distance passengers to endure a temperature under 60°, be condemned as dangerous and a menace to the health of their passengers and their patrons, who are hereby warned to seek other means of conveyance.

NEW YORK.

Carnegie's Gift to Ithaca.—The offer of Andrew Carnegie to defray the expense of the new filtration plant at Cornell University, Ithaca, which will amount to about $150,000, has been accepted by the university.

Elsberg Bill Passes Senate.—The bill providing for the abolition of the coroner's office in New York, Kings, Queens and Richmond counties was passed by the senate, March 18, by a vote of 29 to 17. Senator Elsberg, who introduced the bill, was openly charged with having been actuated in this matter solely by personal spite.

Preventable Disease Mortality.—The mortality from preventable diseases during the year 1902 was 14 per cent. of the total, which was above the average of the last few years. This increase was largely attributed to the prevalence of smallpox, 442 of the deaths being from this cause. Typhoid fever caused 1,318 deaths, or 300 less than the average, and pulmonary tuberculosis 12,582, as against 13,270, the average for the past five years. The work of the Bureau of Pathology and Bacteriology seems to be appreciated, for the report states that applications for examinations of samples of water are becoming more and more numerous. The calls for the examination of foods and drugs can not be met without a greater appropriation from the legislature.

New York City.

The will of Dr. T. Gaillard Thomas has been filed for probate. It is believed that the value of the estate is about one million dollars. It is to be divided into thirds, one-third going to the widow and one to each of the sons.

Fighting Glanders.—The health commissioner has asked for an appropriation of $5,000 to enable the department to stamp out glanders, which is prevalent among the horses in the city. The disease was first discovered in an uptown boarding stable, and it was then learned that horses had been dying there of glanders for months, but no report had been made. It is said that from five to ten cases are reported daily in this city at the present time, and that the disease is also prevalent in the outlying districts. One man, a cigar maker, who is not known to have had any communication with horses, died of the disease at the Metropolitan Hospital.

Rabies Prevalent.—The recent death from rabies of Dr. Henry P. Loomis' son has directed attention to the prevalence of this disease not only among dogs but horses. Several well-known veterinary surgeons are responsible for the statement that several cases of rabies among horses had recently come to their notice. According to Dr. William H. Park of the health department, two physicians practicing on the West Side lost their horses on the same day from rabies. There have been four deaths from hydrophobia in this city in the past twelve months, and within the past few weeks no less than 13 persons have received the Pasteur treatment from the board of health.

Gifts to Hospitals.—The Manhattan Eye and Ear Hospital has received from the widow and children of Gen. Samuel Thomas a gift of $50,000, thus raising the new building fund to $100,000. The institution has outgrown its present quarters and desires to have a new building in the vicinity of Second Avenue and Fifty-ninth Street.——J. Rogers Maxwell has just offered to build, at his own expense, the two central sections of the proposed new building of the Long Island College Hospital as a memorial to his brother, Henry W. Maxwell, who was for a long time closely identified with the interests of the hospital. These two sections will form the main building on Henry Street. The buildings, when completed, will cost about one million dollars.

Buffalo.

Money for General Hospital.—William E. Brown has donated $10,000 for the Buffalo General Hospital.

The February Report.—The monthly report of the department of health for February shows a death-rate of 14.96 per 1,000 a year. The principal causes of death were as follows: Consumption, 43; diphtheria, 8; typhoid fever, 14; debility, 45; cancer, 21; apoplexy, 19; meningitis, 11; valvular heart disease, 29; pneumonia, 53; appendicitis, 6; cirrhosis of the liver, 7; gastroenteritis, 7; diabetes, 3; nephritis, 32, and violence, 24. The total deaths for February were 474, as compared to 392 for February, 1902.

PENNSYLVANIA.

Philadelphia.

Bills Defeated.—The Blumle bill to reward mothers of large families with gold medals and cash prizes and the Keppler antimiscegenation bill were both recently defeated in the lower branch of the legislature.

Resigns After Long Service.—Miss Marion A. Smith has resigned as directress of the Philadelphia Hospital Training School for Nurses after sixteen years' service to accept the superintendency in the University of Pennsylvania Hospital.

Contract Awarded.—At a recent meeting of the board of trustees of the Jefferson Medical College Hospital, the contract for the foundation and the structural steel work, as far as the first floor, was awarded for $99,485. The work will soon begin.

Homeopathic Hospital Postponed.—City councils have decided to postpone further consideration of the proposition to establish a city homeopathic hospital at the site of the present Municipal Hospital when the latter is removed to its new site in the Thirty-third ward.

Vital Statistics.—Typhoid fever showed a decrease for the week ended March 21, there being 74 fewer cases than in the preceding week. The total number of deaths from all causes was 535, as compared with 577 for the previous week, and 476 for the corresponding week of 1902.

Bequests.—The recent adjudication of the estate of William McClary shows a large number of charitable bequests, among them $5,000 to each of the following hospitals for the endowment of free beds: Protestant Episcopal, Presbyterian, German, St. Joseph's and Samaritan hospitals.——From a balance in the estate of J. Alfred Kay the following legacies were allowed: $5,000 each to the Pennsylvania, Germantown, Jefferson, University of Pennsylvania, Orthopedic and Polyclinic hospitals; to the German, St. Agnes', St. Joseph's, Gynecean, Howard, Medico-Chirurgical, Jewish, Hahnemann and Presbyterian hospitals, $1,000 each; a like amount went to the Philadelphia Dispensary and to the Howard Hospital and Infirmary for Incurables. One-sixth of the residuary estate not named is divided among the Pennsylvania, Jefferson, Germantown, University of Pennsylvania, Orthopedic, and Polyclinic hospitals.

UTAH.

Smallpox in State School.—Several cases of smallpox have been discovered in the Utah State School for the Deaf and Dumb and the institution has been placed under strict quarantine.

Want Medical School.—Physicians of Salt Lake City propose a medical college in connection with the state university. They have asked the board of regents of the university to co-operate and, if a favorable reply is received, the legislature will be asked to make an appropriation to establish this department.

Alleged X-Ray Injuries.—A. K. Hicks has brought suit for $20,000 damages against Dr. Samuel H. Pinkerton, Salt Lake City, alleging "negligent, careless and unskilful treatment of a gunshot wound with *x*-rays" whereby the flesh and bone of plaintiff's left leg is said to have been "burned, injured and destroyed."

Salt Lake City's Deaths.—The mortality of Salt Lake City for 1902 was 849, corresponding to an annual death rate per 1,000, of 11.32. The birth-rate for the same period was 16.98 per 1,000. Pneumonia caused 74 deaths; tuberculosis, 43; bronchitis, 24; Bright's disease, 40; heart disease, 49; meningitis, 36; paralysis, 38; diarrhea and enteritis, 45; appendicitis and peritonitis, 21; cancer, 29; diphtheria, 39; scarlet fever, 36 and typhoid fever, 28.

Contagious Diseases in Salt Lake City.—During 1902, 1,573 cases of contagious and infectious disease were reported, the mortality from which made up nearly 13 per cent. of the total mortality. There were 443 cases of scarlet fever with 36 deaths; 251 of diphtheria with 39 deaths; 97 of smallpox with one death; 167 of typhoid fever with 28 deaths; 507 of measles with 4 deaths; 101 of chickenpox without a death, and 7 cases of whooping cough with one death.

Mental Hospital Bill Progresses.—Mr. Spry's mental hospital bill passed the house. It provides for an assistant physician and other additional help, for daily visits by a physician to each patient; it changes the form of examination, provides for the limitation of commitment, allows no special care to be given to any inmate for extra pay and incorporates the most modern ideas of hospital treatment, regarding the insane as sick. The words "arrest" and "conviction" are no longer used.

WASHINGTON.

Physician's Office Robbed.—Burglars recently entered the office of Dr. Guy S. Peterkin, Seattle, and secured $184 from his desk.

Forfeited His Bond.—F. C. Goodale, Spokane, charged with practicing medicine without a license, failed to appear, March 5, for trial, and his bond was forfeited.

Grip Epidemic in Tacoma.—Influenza is said to be epidemic in Tacoma. The rules for its prevention as summarized there are: Nourishing food; plenty of sleep; cleanliness of person and avoidance of stimulants.

Smallpox at Colfax.—Colfax has 16 cases of smallpox, not 31, as was reported. Schools have been closed, public gatherings interdicted and children are not allowed on the streets. It is noted that the disease is confined to boys between 16 and 19 years of age.

WISCONSIN.

Diploma Stolen.—The diploma of Dr. Adolph Roos, Oshkosh, was recently stolen from his office.

Schools Closed.—On account of the prevalence of varioloid, diphtheria and scarlet fever in Baraboo, the local schools have been closed.

Emergency Hospital's Work.—The report of Emergency Hospital, Milwaukee, for the past year shows that 910 cases were treated, 819 of the patients being males, and 655 of the cases surgical. In 9 cases the patient died before reaching the hospital.

Personal.—Dr. Richard Schorse, Milwaukee, has been appointed resident physician at the University of Pennsylvania Hospital, Philadelphia.——Dr. Richard Dewey, Wauwatosa, has been elected president of the honorary medical staff of the Milwaukee County Hospital for the Chronic Insane.——Dr. Arthur J. Patek has been selected as chief of the attending staff, and Dr. Alfred H. Levings, chief of the consulting staff of the Jewish Hospital.——Dr. B. C. Gudden has associated with him in the management of the Oshkosh Clinic, Dr. J. A. Crum.

In the Hands of the Law.—C. B. Savnac, an itinerant corn doctor, has been arrested at Green Bay, charged with practicing medicine without a license.——Dr. George G. Gregory is held in jail at Madison, awaiting the extradition papers from Michigan, where he is wanted on a charge of perjury.——Dr. B. Fowler Baker, Milwaukee, charged with violating the health law, was arraigned in the District Court, March 5, and his case continued until March 14.——Louis Tauvar, an Italian dentist of Marinette, was arrested recently, charged with practicing medicine without a license.

GENERAL.

American Beds in French Hospital.—Victoria Hospital, Nice, France, has received $2,500 from Mrs. Robert Goelet, New York, to endow an American bed. Another was endowed by Andrew Carnegie five years ago.

A Merited Promotion.—By a special act of congress Major William C. Gorgas, surgeon U. S. Army, who made so brilliant a record by his sanitary work in Havana, has been promoted to colonel and assistant surgeon-general.

New Red Cross Head.—Rear Admiral William K. Van Reypen, U. S. N., retired, former surgeon general of the Navy, has been named as the successor of Miss Clara Barton as president of the American National Red Cross Society.

Promotions Prior to Retirement.—The Army papers announce that preliminary to retirement Colonels Charles Smart, Peter J. A. Cleary, Henry Lippincott and Calvin De Witt, assistant surgeons-general, are to be promoted to the rank of brigadier-general.

Plague Continues to Decrease.—The use of the Haffkine, and especially the Yersin, serum, in Mazatlan are putting a decided check on the fatality of the plague. Deaths average only from one to three a day now. Some days there are none. Up to March 13 the total number of cases was 313 and the deaths 255. About $130,000 has been thus far spent in relief of the needy. Without the money contributions it would have been impossible to proceed with the wholesale destruction of infected houses and other measures that fall heavily on the poorer classes. Plague now exists at Villa Union, Siquieros and Rosario.

FOREIGN.

Smallpox in Trinidad.—This island is suffering from an epidemic of smallpox, widespread and rapidly extending.

Russian Medical Students at Berne.—The Russian medical students at Berne, both male and female, far outnumber those of Swiss and other nationalities. The Swiss claim that they are crowded out and demand measures to regulate this afflux of Russians.

Changes in the German Universities.—Dr. Hackenbruch has been invited to take charge of St. Joseph Hospital at Wiesbaden in the place of the late Professor Cramer.——Kreibich of Vienna has been appointed professor of dermatology, and von Hacker of Innsbruck, professor of surgery at Graz.

Trachoma Prevents Visitors' Return.—Some travelers in Italy are refused transportation back to America because they

are afflicted with trachoma and the authorities fear that others on shipboard might take the disease. They are said to be American citizens and to take their detainment in ill humor.

Honors for Koch.—The Paris Académie des Sciences recently voted for a foreign associate member in the place of Virchow. The names proposed were: Robert Koch of Berlin, Agassiz of Harvard, Langley of Washington, and Van der Vals of Amsterdam. Koch was chosen, having received 26 and Agassiz 18 votes.

Russian Isolation Houses.—St. Petersburg will soon celebrate its two hundredth anniversary by the erection of a stone building to serve as a temporary home for the healthy inmates of infected houses while the latter are being disinfected. It will accommodate 100. There are already three such buildings, with a capacity of forty each.

Responsibility for Erysipelas in a Hospital.—Our Russian exchanges mention that the widow of an Odessa architect has sued Dr. Jansen and the managers of a hospital at Berlin for nearly $50,000. The architect entered the hospital for an operation, which was successful, but he contracted erysipelas, to which he rapidly succumbed. The widow claims that the erysipelas might have been prevented by due care.

Institute for Post-Graduate Courses at Berlin.—The organization of the free post-graduate courses which are now being held each year in twenty-three large cities in Germany owes its inception to the late Empress Frederick. It is now proposed to found a special institute in Berlin as a memorial to the empress, which will serve as a center for the movement and for housing the collections, etc., which can thence be dispatched as needed.

Baudouin at the St. Louis Exposition.—Dr. Marcel Baudouin of Paris has been made a member of the committee on admissions to the St. Louis Exposition and expects to remain in this country several months. He is the founder of the unique "Institut de Bibliographie," also the editor of the "Gazette Med. de Paris" and the "Bibliographia Medica." He is the moving spirit in the "Agence de la Presse Scientifique Internationale" and has published several important works alone or in collaboration with others. He visited this country at the time of the Columbian Exposition.

Burlesque Number of the "Munich Med. Wochenschrift."—This interesting "Scherznummer" is equal to its five annual predecessors. Recent occurrences in Germany afford apt subjects for satire. One communication, purporting to be from Nardenkötter's clinic, is entitled "The Bath Tub in the Pharmacopeia." It refers to the fact established at the trial of this charlatan that he compounded his medicines in the family bath tub. "A Rare Case of Pneumonia" is described in detail, evidently copied verbatim from the latest text-book. Its rarity was due to the slimness of the writer's practice. "Progress in Homeopathy" describes the limitations hitherto imposed on homeopathists by the difficulty of writing figures with as many ciphers as are necessary to express their dilutions. This has been remedied now by substituting for the figures the figure representing the quantity of ink required to write them. Further progress has also been realized by the results obtained with river water, to which one drop of the mother dilution of croton oil was added several miles above. After drinking six quarts of this river water in twenty minutes, diuresis was promoted to a remarkable extent, thus establishing the hitherto unsuspected value of croton oil as a diuretic when administered on the Hahnemannian principles. "Metallodiscotherapy in Nervous Affections," portrays the remarkable benefit to be derived in inanition and nervous depression, by application of a silver or gold disc, bearing the impress of the mint, and applied to the chest in a leather bag like the "mercolint aprons." One article announces that the sick-benefit societies will soon be able to dispense with nearly all their professional medical assistance, as they are planning to introduce the plan of treating all the sick by streets. All in the first street will be treated by sun baths; on the second by hypnosis; on the third by bromids and opium; on the fourth by mercurial inunctions, and so on. A new infallible remedy for constipation is announced. The patient swallows a silver ball fastened to a celluloid thread wound on a spool. The course of the ball is traced by radiography, and when it emerges the length of the alimentary canal can be estimated by the thread. It is left in the body, the upper end tied to the ear, and the permeability of the intestinal canal can be maintained by sawing it back and forth. It is possible also to clean out the alimentary canal by tying a brush to the thread and pulling it through. The idea of the thread is patented under the name "Entero-cathartor." Among the advertisements we note that of the new prepared food "Sana," said to be recommended by Hippocrates where he wrote: "Mens sanus in corpore sana," viz., "That man alone is healthy who has sana in his body."

LONDON LETTER.

The Regulation of Cremation.

A report has been issued by a departmental committee appointed by the home secretary to prepare regulations to be made under the Cremation Act passed last year. The object was to frame regulations which, while avoiding unnecessary restrictions such as might discourage cremation, would reduce to a minimum the risk of cremation being used to destroy the evidence of murder. The committee studied the records of cases of murder in which evidence had been obtained by the exhumation of the remains, and directed special attention to the certificates or other evidence of the cause of death that had been produced before the burial. They disclaim the idea that any possible restrictions can guard completely against the risk of cremation being used for the concealment of crime. But they think that regulations can be framed which will so far reduce the risk as to make cremation at least as safe as burial. The committee has come to the conclusion that the person to decide on the cremation should be a medical referee, specially qualified for the work and appointed by the cremation authority. Before cremation is permitted there should in every case be a personal inquiry by someone beside the medical attendant of the deceased. If the medical referee can not make the actual inquiry there ought to be a second certificate by an independent person, who should be a medical man, either nominated for the purpose by the cremation authority or holding one or other of the following appointments: Medical officer of health, police surgeon, certifying factory surgeon, medical referee under the workmen's compensation act, or physician or surgeon to a large public general hospital. In every case there should be required either (1) two certificates, one given by the medical attendant, the other by an independent person—the medical referee, or a doctor nominated by the cremation authority, or a person holding one of the public appointments mentioned above; or (2) a certificate given after a postmortem by a pathologist named by the cremation authority, who may or may not be the medical referee; or (3) a certificate by a coroner given after an inquest. If the certificates under heading 1 do not show the cause of death definitely and in such terms as to exclude the possibility of poison or violence as the cause of death, the cremation should not be allowed unless a postmortem has been held and a certificate given as under 2. If this does not sufficiently reveal the cause of death, and if the relatives still desire cremation, there must be an inquest. The postmortem should be made by a pathologist, nominated by the cremation authority, who should be a person accustomed to make postmortem examinations. The medical attendant of the deceased, or some other medical representative of the applicant for cremation should be allowed to be present. If, though the cause of death be definitely ascertained, there still remain any suspicious circumstances in the case, the coroner should be referred to, and where a case has been referred to the coroner, cremation should not take place unless, after holding an inquest, he can give a certificate stating definitely that no circumstance exists which could render necessary any further examination of the remains.

Mistakes in the Diagnosis of Infectious Diseases.

The committee of the Metropolitan Asylums Board has issued a most interesting report showing the cases of mistaken diagnosis sent to their board's hospitals during the last three years. In 1899 1,583 cases were sent which were not notifiable diseases—a percentage of mistakes of 6.3. In 1900 the number was 1,706, a percentage of 7.9; and in 1901 the number was 2,365—a percentage of 9.2. The percentage on the total cases for scarlet fever, 5.6; diphtheria 12.8, and typhoid fever 25.5. Among the diseases diagnosed as scarlet fever were measles, rubella, tonsillitis and erythema. Measles was returned as diphtheria in 47 cases, and tonsillitis as diphtheria in 880 cases. Among the cases wrongly certified as typhoid fever were 13 of influenza, 22 of febricula, 9 of bronchitis, and 86 of pneumonia. Of notified cases of smallpox the diagnosis was mistaken in 13 per cent. of the cases.

Poisoning by Illuminating Gas.

The modern method of mixing coal gas with "water gas" greatly increases the amount of carbon monoxid in the gas supplied for illumination. Hence an alarming increase in the number of cases of carbon monoxid poisoning has recently

taken place. The latest fatality has been reported from Dublin where a man and his wife were found asphyxiated in their room—the former in a dying state, the latter dead. Prof. E. J. McWeeney examined the blood and found it was saturated with carbon monoxid and gave the spectroscopic indication. Within a short period 6 deaths from this cause have occurred in Dublin. In this particular case the bedroom was insufficiently ventilated and the deceased came from a remote town in Ireland where gas had not been introduced. No doubt their want of familiarity with its use was a source of danger.

Typhoid Fever from Sewage Contaminated Shell Fish.

We have already briefly referred to this subject in THE JOURNAL. As long as twenty-three years ago Sir Charles Cameron, health officer of the City of Dublin, read a paper at the British Medical Association on "Typhoid from Oysters," but the subject attracted no attention until 1895, when it was revived by Sir William Broadbent, who recorded a number of cases of typhoid fever which he attributed to contaminated oysters. In 1896 Dr. Bulstrode, Dr. Klein and the late Sir R. Thorne Thorne reported to the government on the question and, as a result, a bill to regulate the oyster trade was introduced into parliament. But it was withdrawn owing to certain administrative difficulties. Interest in the subject again languished until the recent outbreaks of typhoid fever in several parts of England, attributed to shell fish. In London a scare has been produced and the oyster trade almost completely paralyzed by the publication of the medical officer of health's report. Four cases of typhoid fever were brought under his notice which appeared to be due to cockles bought at the great fish market of Billingsgate. In samples of these cockles Dr. Klein, the bacteriologist, found evidence of sewage contamination—the *Bacillus coli communis*, and spores of the virulent *Bacillus enteritidis sporogenes* in abundance. From one cockle he isolated the typhoid bacillus. Even "cooked" cockles contained numerous living organisms. These mollusks are not boiled sufficiently long to raise their interior to 160 F. —at which the typhoid bacillus and all the bacilli of the colon group perish—because they would be rendered tough and unsaleable. It appears that the whole estuary of the Thames is polluted by sewage. Hence, not only shell fish but sprats, whitebait and smelts, which are eaten "uncleaned," must be a source of danger. Numerous other outbreaks of typhoid fever have been traced to cockles. In 1902 twenty-six cases occurred in Westminster. An outbreak of typhoid fever, due to oysters, occurred at Winchester. After a banquet on November 10 ten persons were attacked on the same evening with violent diarrhea and the illness developed into typhoid fever. As it was not thought possible for the disease to have been conveyed by cooked food suspicion fell on the oysters. All the ten patients had eaten them, though several other persons had also done so with impunity. Investigation showed that the sewage of the town of Emsworth entered the river only fifty yards from the oyster pits and practically flowed over them. Dr. Klein found excrementitious matter, but not the typhoid bacillus, in the oysters and in the water taken from the pits. About the same time an outbreak of thirteen cases of typhoid occurred at Portsmouth, and several of the patients had eaten oysters from the same pits. Subsequently Dr. Klein examined eighteen samples of oysters taken from five different fisheries and found eleven contaminated with sewage. The medical officer of health of London strongly urges the necessity for legislation to prevent the contamination of shellfish by sewage.

The Liverpool School of Tropical Medicine and the Prevention of Malaria.

The energetic Liverpool School of Tropical Medicine has drawn up a set of simple instructions for the prevention of malaria to serve as a guide to Europeans living in tropical countries. They are advised to invariably sleep within mosquito curtains of a mesh of not less than ten holes to the inch and to tack on a piece of material all around the net above the level of the mattress, so as to protect the limbs from bites through the net during sleep. Mosquito boots to protect the ankles during sleep are also recommended. At least 15 gr. of quinin should be taken weekly. The quarters provided for the European members of a firm should possess at least one sitting room or portion of a veranda securely protected by screens of wire gauze against the entry of mosquitos. This should be the room commonly used by the inmates from sunset to bedtime. The office and dining room should be provided with punkahs or electric fans, to be used during office hours and during meals. The premises of the firm should be provided with at least one rubbish bin (with a cover). All cisterns and other vessels for the storage of water should be furnished with accurately fitting covers and wire-gauze caps to the pipes for the purpose of excluding mosquitos. All open and permanent collections of water really required for irrigation, washing or other purposes should be treated once a week with kerosene oil for the destruction of larvæ. The school also intends to arrange a course of lectures on the prevention of tropical diseases for clerks, missionaries and others proceeding to the tropics. Each course will consist of five lectures, extending over two weeks in the months of January, May and November.

Smallpox in England.

Cases of smallpox continue to occur in various parts of the north of England. Over 300 cases are under treatment in Liverpool, and the disease is also rife in Salford and Leeds. It has also broken out in a jail at Birmingham. In the south of England six cases have occurred in one family in Devonshire. In London a man was found by the police in a dying condition in the streets. He was taken to an infirmary, where the cause of disease was found to be hemorrhagic smallpox.

Correspondence.

Tropical Medicine.

PHILADELPHIA, March 21, 1903.

To the Editor:—I am extremely glad to see your editorial on Tropical Medicine in the last issue of THE JOURNAL. I have been much pleased with the interest which has been shown in the study of tropical medicine and surgery of late in the United States. This winter, the Jefferson Medical College founded a lectureship, which was purely voluntary for the senior class, no examinations were held on it, nor was attendance essential to graduation. I expected, perhaps, that a dozen men would attend the lectures of Captain Kieffer of the Army, who gave the lectures for us. Instead of a dozen about 150 men (nearly the entire senior class) attended and showed the greatest possible interest in the subject. The junior class also requested the privilege of attending. The Washington Post-Graduate Medical School opened a similar course the following week, and I believe in Chicago a third course has been established.

This movement has been followed also by the organization of a Society for the Study of Tropical Medicine and Surgery in Philadelphia. Your suggestion that the American Medical Association can not overlook this subject in any future program is certainly wise. Not only is the profession in the subtropical portions of America interested in the subject most vitally, but our new possessions in Hawaii, the Philippines and Porto Rico, our very intimate affiliations with Cuba, and the very early establishment of the Panama Canal with a large population of Americans in Central America make it imperative that the Association should give considerable attention to this subject.

I trust that it will be brought before the Association at the New Orleans meeting by the proper authorities, and, as seems to me best, that a Section on Tropical Medicine and Surgery shall be established. It would be, I fear, an inefficient way to deal with a large subject to have it divided among a number of sections, medicine, surgery, pathology, ophthalmology, etc. This, however, is for the Association itself to decide. The main thing is that the subject shall be properly considered.

W. W. KEEN.

Michigan Students Protest.

ANN ARBOR, March 21, 1903.

To the Editor:—On behalf of the faculty and students of the Department of Medicine and Surgery of the University of Michigan I wish to enter a most vigorous protest against your editorial on page 787. [THE JOURNAL, March 21.] You endeavor to apparently keep within the bounds of truth and at the same time you give a wholly false impression. You start by saying that the students of "certain medical colleges of that state" (Michigan) have protested against the passage of the proposed medical act, and after very properly condemning the position of such students, you wind up with the following: "We hope the students of the Michigan medical colleges will

see the unwisdom of their action and assist, rather than oppose, those who are fighting for the elevation of the standard of the profession which they are about to enter." This statement implies that the protest against the passage of the act has been made by a large number of medical students in the schools of Michigan, and such an implication is not only unjust, but is absolutely false. The students of the Department of Medicine and Surgery of the University of Michigan are not politicians and have never attempted in any way to influence legislation. They are otherwise engaged and have no time to send delegations to Lansing. Moreover, both the student body and the faculty of this school are in favor of the proposed amendment, and the graduates of this school are perfectly willing that their record before the examining boards of this country should be compared with the records of any other medical school in the country. So far as I know the protest has come from only one medical school, and it is unfair for you to condemn the medical students in the schools of Michigan as a whole on account of the action taken by students from one school. When you make charges of the kind made in your editorial you should be more specific and exact.

Yours respectfully, VICTOR C. VAUGHAN.

[Dr. Vaughan evidently has not kept in touch with what is going on in his state or he would not say that "the protest has come from only one medical school." We have positive information as regards four, and indirect regarding the other. (There are five colleges in the state aside from the University of Michigan.) As a rule the senior students, as those graduating this year would probably be exempt, are taking no action; and the faculties are generally against the students' actions. We are glad to know that the students of the Department of Medicine and Surgery of the University of Michigan are not among those who are protesting.—EDITOR.]

May We Not Secure Immunity from Fatal Chloroform Narcosis?

INDIANAPOLIS, March 19, 1903.

To the Editor:—Chloroform, pleasant to take, quickly producing thorough muscular relaxation and complete insensibility to pain, would be the ideal anesthetic were it not for the dangers attending its use. These dangers arise so quickly that the system is overwhelmed before the anesthetist realizes that death is impending. Fatalities occur, not necessarily when large amounts of chloroform are used, but when gasps and deep inspirations fill the innermost alveoli with the concentrated vapor. Various apparatuses have been devised to properly dilute the vapor, but none has been altogether satisfactory.

Parturient and pregnant women seldom, if ever, succumb to chloroform narcosis, for the following reasons:

1. In the parturient the central nervous system is in a state of congestion.

2. In both the pregnant and the parturient movement of the diaphragm is greatly restricted because of abdominal distension; therefore, breathing is necessarily shallow. As a consequence, chloroform would have to be given in very concentrated vapor, indeed, to prove dangerous to the patient, for it must be greatly diluted by admixtures with the residual air of the lungs previous to absorption and, in such cases, the shallow respiration would make it practically impossible to overwhelm the patient with an overdose in a few respirations.

In view of these facts, would it not be wise before the administration of chloroform to artificially restrict the movements of the diaphragm? An abdominal bandage, preferably an elastic bandage, would assure shallow breathing, and it would appear, secure at least the immunity from "drowning" in chloroform which belongs to the pregnant and the parturient. H. W. DUDLEY, M.D.

Eye-Strain and the General Practitioner.

CHICAGO, March 23, 1903.

To the Editor:—Referring to your review in THE JOURNAL of March 14 of Dr. Gould's book, "Biographic Clinics," dealing with the question of eye-strain and its effects, I can not but think it unfortunate that you should adopt such a critical attitude, because the general impression left in the mind of the reader will be that oculists are very prone to exaggerate the importance of eye-strain, and that in the absence of very direct indications the counsel of an oculist will be deemed superfluous and be dispensed with.

It may be that Dr. Gould's claims are excessive, but as a general practitioner I do most certainly know that not nearly enough of our patients are referred to the oculist. Provided that a conscientious and skilled refractionist be employed, the fee and time spent in the examination are the only losses to the patient, yet many patients who could well afford these if it were only to exclude the possible culpability of the eye, are allowed to suffer needless tortures for years because of the ignorance or thoughtlessness of the general practitioner, or sometimes his jealousy of the specialist.

As a general practitioner I have seen so much relief afforded patients by the wearing of properly-fitted glasses, and in such very unexpected ways, that I feel very keenly on this subject, and for this reason am inclined to resent anything that tends to relieve the physician of his responsibility to his patient or encourages him to undervalue the exceeding importance of eye-strain in causing disturbances anatomically remote from the eye and very various in kind. The judicious employment of the services of an expert refractionist—and competency of the highest order is a sine qua non in refraction work—will rob the practitioner of many of his chronic cases, and in place of fees he will have to be content with gratitude—if the oculist does not get all of that. Our duty, however, is none the less clear. Very truly yours, JAMES W. WALKER, M D.

Newspaper Reputation.

CHICAGO, March 24, 1903.

In view of the surprising and, to some of us, painful newspaper publicity that characterized the now famous visit of Professor Lorenz to this country, the following clippings from the daily papers are of interest:

"DR. MUELLER PERFORMS FOUR OPERATIONS.

Dr. Frederick Mueller, the pupil of Dr. Lorenz, performed four of the most difficult operations for congenital dislocation of the hip, in Beth Israel Hospital to-day," etc., etc.—New York Letter, the *Chicago Tribune*, March 15, 1903.

"LORENZ MACHINE IS USED SUCCESSFULLY.

For the first time in this country the Lorenz machine has been used in an operation for hip disease. The operation was performed by Dr. Frederick Mueller, a pupil of Dr. Lorenz," etc., etc., etc.—New York Letter, *Chicago Record-Herald*, March 17, 1903.

"DR. MUELLER IS BACK. ASSOCIATE OF DR. LORENZ WILL PRACTICE ORTHOPEDIC SURGERY HERE.

TO REMAIN PERMANENTLY.

NOTED VIENNA SURGEON WILL BECOME A CITIZEN AS SOON AS LAWS PERMIT."

—*Chicago Record-Herald*, March 23, 1903.

And then follows a third of a column, including what purports to be an interview with Dr. Mueller, the substance of which is that he likes this country so much that he couldn't stay away; that "There is a great field here for orthopedic surgery. Chicago is centrally located, and people will flock here for treatment from all over the country."

These are but samples taken from the public press. Each of them contains what purports to be some interview with Dr. Mueller.

How long will it be before it is learned that such newspaper attentions, however profitable from a business standpoint, are not accepted by medical gentlemen in this country?

W. A. PUSEY.

Marriages.

DEYO L. RAMSDELL, M.D., Lincoln, Neb., to Miss Gertrude Musser of Orangeville, Ill, March 9.

SAMUEL CRAIG PLUMMER, M.D., Chicago, to Miss Mary Louisa Middleton, daughter of the late Dr. W. D. Middleton of Davenport, Iowa, March 18.

CARLTON LEE STARKWEATHER, M.D., Occoquan, Va., to Miss Jennie Atkinson Jones, daughter of the late Elias Jones, M.D., of Fairfax Courthouse, Va., at Trinity Church, Washington, D. C., March 12.

Deaths.

Edward Watrous Jenks, M.D., of Detroit, died suddenly, March 19, on a Wabash train between Chicago and Detroit, after an illness of five days, from pneumonia, aged 69. Accompanied by his daughter he had been taking a pleasure trip through Mexico. While visiting the Grand Canyon he took cold, and when he reached El Paso, pneumonia developed. Despite the advice of his physicians he persisted in returning to Detroit, but died on the train two hours after leaving Chicago. He was born March 31, 1833, in Victor, N. Y., and was graduated from Castleton (Vt.) Medical College in 1855; he also received a degree in medicine from Bellevue Hospital Medical College, New York, in 1864. The degree of LL.D. was conferred on him by Albion (Mich.) College in 1879. He established himself in practice in Detroit, and in 1864-65 was assistant surgeon in the military hospital, Detroit. He was one of the founders of Detroit Medical College, its president in 1868-69 and professor of obstetrics and diseases of women. From 1871 to 1875 he occupied this chair in the Medical School of Maine, Bowdoin College, and in 1879 was appointed professor of gynecology in Chicago Medical College, succeeding Dr. William H. Byford. He was a fellow of the London Obstetrical Society; one of the founders of the American Gynecological Association; a member of the American Medical Association; member and formerly president of the Michigan State Medical Society, and of the Detroit Academy of Medicine; member of the Detroit Gynecological Society; member of the Detroit Medical and Library Association, and of the Wayne County Medical Society. He was also an honorary member of the Maine Medical Association, Ohio State Medical Society, Cincinnati Obstetrical Society, and Upper Peninsula (Mich.) Medical Society. He was at one time a member of the State Board of Charities and Corrections. He was for several years surgeon-in-chief of the Michigan Central Railroad. He was one of the founders, and for four years editor of the "Detroit Review of Medicine." Dr. Jenks was one of the eminent gynecologists of his time, and made a special study of the history of gynecology. The "Detroit Free Press," in its issue of March 20, pays the following tribute to the memory of Dr. Jenks:

> Michigan and Detroit have suffered a distinct loss in the death of Dr. Edward W. Jenks. In the widened relations of life, he was the old-school gentleman, courteous, considerate and charitable at all times. He carried his ideals into his professional and public life. In the sociological circles of the state Dr. Jenks will be specially missed. He had given much time to the work of correction and charities. He was a careful student of pauperism and crime. He was deeply interested in penology, and had accomplished much towards sustaining interest in the charities and corrections of the state.
>
> To the children of Michigan Dr. Jenks was a firm, faithful and intelligent friend, and particularly was he the friend of the children of the poor and the unfortunate. Much of the energy of his later life was given to the effort to establish a home for crippled and dependent children. All his theories of organized charity and corrections were based on the belief that reform must begin with the child; that unfortunate children of all kinds should be the object of the state's tenderest solicitude; that those who could be trained into useful members of society should be so trained; that those who could not, should be isolated in such a manner that they would present the least possible menace to the physical and moral health of future generations. All this was a labor of love with Dr. Jenks, who contributed lavishly of his money, his time and his energy to the service of society, and it is not extravagant to say that the state of Michigan is far poorer by reason of his death.

Samuel W. McJunken, M.D. Medical College of the State of South Carolina, Charleston, 1875, assistant physician at the North Texas Hospital for the Insane, and previously a medical officer in the Navy, died from erysipelas at his home in Terrell, Texas, Mach 8, after an illness of one week, aged 48. He was a member of the Dallas Medical and Surgical Society, which passed appropriate resolutions at a special meeting held March 9.

Peter Klein, M.D. Geneva (N. Y.) Medical College, 1846, one of the oldest physicians in Detroit; county physician in 1847 for six years; in the United States' service during the Civil War, twice city physician, and twice a representative of Wayne County in the legislature, died at his home in Detroit from paralysis, after an invalidism of five years, March 15, aged 89. He had relinquished active practice ten years before.

John G. Giles, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1860, of Athens, Ont., died in the General Hospital, Brockville, Ont., March 12, from kidney disease, aged 69. He was a member of the Provincial Legislature in 1876.

George Washington Le Cato, M.D. University of Maryland, Baltimore, 1860, of Wachapreague, Accomac County, Va., for many years a practitioner of New York City, and since 1893 a member of the Virginia senate, died at Richmond, Va., March 12, aged 61.

Charles A. McCall, M.D. University of Pennsylvania, Philadelphia, 1855, died from influenza at his home in West Philadelphia, after a brief illness, aged 65. He served through the Civil War and had charge of the Mount Pleasant Hospital, near Washington.

Clayton T. Hall, M.D. Medical College of Ohio, Cincinnati, 1889, died at his home in Mason, Ohio, March 11, from septicemia from an infected wound received while incising a carbuncle, aged 36. He was a member of the American Medical Association.

Samuel H. McLean, M. D. Eclectic Medical Institute, Cincinnati, 1874, superintendent of the Illinois Asylum for Feeble-Minded Children, Lincoln, Ill., died at that institution, March 18, after an illness of two years, aged 53.

Nathan Udell, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1855, for many years a practitioner of Centerville, Iowa, and twice state senator, died at the home of his son in Denver, March 6, aged 86.

Frank Fontelle Brigham, M. D. Harvard Medical School, Boston, 1885, a member of the staff of the Lynn Hospital, died from heart disease at his home in Lynn, Mass., after a brief illness, March 10, aged 40.

Alvin Jayne Cole, M.D. University of Michigan, Ann Arbor, 1860, surgeon of the Fourteenth Michigan Volunteer Infantry throughout the Civil War, died at his home in Fort Madison, Iowa, March 6, aged 65.

Albert E. Gangloff, M.D. Cleveland Homeopathic College, 1900, of Pittsburg, Pa., died from pneumonia, March 12, after a short illness, at the home of his brother in Mount Washington, Pa., aged 25.

Noyes Barstow, M.D. Vermont Medical College, Woodstock, died at his home in Springfield, Mass., March 16, from pneumonia, after an illness of five weeks, aged 82. He retired from practice in 1885.

Liberty M. Chilton, M.D. St. Louis Medical College, 1877, died at his home in Stanberry, Mo., March 9, from paralysis, after an illness of three days, aged 63. He retired from active practice in 1898.

Walter W. Bunyan, M.D. Northwestern University Medical School, Chicago, 1901, an interne at Cook County Hospital, died from pneumonia at Wesley Hospital, Chicago, March 16, aged 26.

Almer M. Collins, M.D. Medical College of Ohio, Cincinnati, 1874, clergyman, mathematician and physician, died at his home in Shelbyville, Ill., March 10, from Bright's disease, aged 58

John G. McPherson, M.D. University of Edinburgh, Scotland, 1848, of Manistee, Mich., died in a hospital in Milwaukee, March 10, aged 77. He served as surgeon during the Civil War.

Rolla W. Selby, M.D. Rush Medical College, Chicago, 1885, of Odebolt, Iowa, died in St. Joseph's Hospital, Sioux City, Iowa, February 15, after an operation for appendicitis, aged 42.

Braxton Banks, M.D. Jefferson Medical College, Philadelphia, 1889, died from pneumonia, after an illness of two weeks, March 12, at his home in Garner, Wake County, N. C., aged 50.

T. Harper Rice, M.D., M.R.C.S. London, 1901; M.R.C.P. London, 1902, died at the home of his parents in Pottstown, Pa., March 14, from tuberculosis, after a long illness, aged 29.

De Forest Hunt, M.D. New York University, 1864, died at his home in Grand Rapids, Mich., March 10, from cancer of the stomach, after an illness of two years, aged 61.

Kinsman D. Broga, M.D., an eclectic physician of Oneida, N. Y., died at his home in that city, March 11, from angina pectoris, after a short illness, aged 73.

Chauncey M. Skinner, M.D. Rush Medical College, Chicago, 1876, of Hartland, Wis., died suddenly from heart disease at Oconomowoc, Wis., March 14, aged 65.

Albert B. McKee, M. D. Rush Medical College, Chicago, 1893, died at his home in Edwardsville, Ill., March 17, from morphin taken with suicidal intent, aged 40.

Lavoisier H. Gratigny, M.D. Starling Medical College, Columbus, Ohio, 1864, died at his home in Cincinnati, March 7, from congestion of the brain, aged 62.

Fastus A. Snear, M.D. Cincinnati College of Medicine and Surgery, 1872, died at his home in Bryan, Ohio, March 10, after a lingering illness, aged 53.

Alfred **D. F. Donkle, M.D.** University of Illinois, 1901, interne at Augustana Hospital, Chicago, died from empyema at Augustana Hospital March 13.

Patrick **N. Kelly, M.D.** McGill University, Montreal, 1884, of Wabasha, Minn., died at the home of his parents, Pine Island, Minn., March 14, aged 46.

Julian **H. Jones, M.D.** Hahnemann Medical College, Philadelphia, 1860, died at his home in Bradford, Vt., March 3, from Bright's disease, aged 64.

Beverly **P. Morriss, M.D.** University of Pennsylvania, Philadelphia, 1849, died at his home near Ebenezer Church, Amherst, Va., March 7, aged 80.

G. A. **Rebman, M.D.** University of Maryland, Baltimore, 1875, died at his home in Wrightsville, Pa., March 9, from consumption, aged 50.

Sherburne **R. Merrill, M.D.** Jefferson Medical College, Philadelphia, 1854, died at his home in Paterson, N. J., March 16, aged 81.

Norman **H. Getman, M.D.** Homeopathic Hospital College, Cleveland, 1854, died recently at his home in Richfield Springs, N. Y.

John Oscar **Lewright, M.D.** Missouri Medical College, St. Louis, 1887, died recently at his home in St. Louis, aged 36.

William **Hunter, M.D.** Homeopathic Hospital College, Cleveland, 1864, died at his home in Blairsville, Pa., March 13.

Levi **C. Hubbard, M.D.** Albany Medical College, 1882, died recently at his home in Carthage, N. Y., aged 66.

Deaths Abroad.

Manuel **Barros Borgono, M.D.,** the eminent Chilean surgeon and rector of the University of Santiago, Chile, died recently in that city.

Mateo **Gonzalez, M.D.,** dean of the medical profession of Morelia, state of Michoacan, Mexico, and for many years director of the school of medicine in that city, died March 5, after a protracted illness.

M. Crisafulli, M.D., who graduated at Messina and after several years of study in Paris and London at the expense of the municipality of Messina, returned to be professor of medicine, died there, February 19, after a brief illness, aged 77.

Dr. **Ferdinand Weyert,** senior physician and chief of the directorate of the St. Petersburg Eye Institute, an eminent ophthalmologist, died at his home in St. Petersburg, February 3, after a brief illness, aged 66. He was graduated from the University of Dorpat, pursued post-graduate studies in Vienna, Paris and Berlin, where he was a student of Albrecht v. Graefe, and on his return to St. Petersburg became connected with the Eye Institute, of which he was an honored official for more than forty years.

Dr. **Adolf. Gessner,** professor and director of the Frauenklinik at Erlangen, died recently, aged 39. In 1890 he was assistant to Prof. Dr. Frommel, from 1893 to 1897 was assistant physician in Olshausen's clinic, and then established himself in Erlangen, where he again became assistant and associate professor. In 1901 he was made director of the gynecologic clinic and professor of obstetrics. He was a thorough student, a clear and entertaining teacher, and a worthy and lovable man of great promise. He wrote the section on sarcoma of the uterus in Veit's Lehrbuch, and also was the author of a well-written and well-known treatise on asepsis and antisepsis in obstetrics.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TREATMENT OF POISONING BY FORMALIN.

BILLINGS, MONT., March 17, 1903.

To the Editor:—Will you please inform me what is the best antidote for formalin? The reason I ask is I had a case of a little boy a few days ago that drank about one ounce. CLIFF LINDSEY.

ANS.—Acetate of ammonia is reported beneficial, as well as dilute ammonia water cautiously administered. Beyond this follow the treatment of acute alcoholic poisoning; if necessary, maintain the body temperature with external heat, the respiration by atropin, the heart by strychnin. Of course, remove all the drug remaining in the stomach. If the vapor of formaldehyd has been inhaled, cautious inhalation of ammonia is recommended by authorities, as it destroys the formaldehyd.

Miscellany.

Clippings from Lay Exchanges.

NO CONSPIRACY ALLEGED.

"Dr. B———, of Atlantic City, is about to locate at Wycombe for the practice of his profession. The doctor has secured rooms in the home of Mrs. G——— P——— and will put up his shingle the beginning of next week. An undertaker located in Wycombe a week or so ago."—*Jenkintown (Pa.) Spirit.*

THE NEW SYMPTOM—CONSCIOUS DELIRIUM.

Under the heading: "Delirious All Evening. Members of Family were at Bedside, but He Did Not Know Them," the *Johnstown (Pa.) Democrat* says: "He was conscious to the end, but was delirious the greater part of the evening."

COLLES FRACTURE OF THE SHOULDER.

"An *x*-ray examination of the injured shoulder of W—— K——, the ball player, . . . reveals the fact that he is suffering from what is known to the medical profession as a Colles fracture."—*Norwich (Conn.) Bulletin.*

DEATH WAS NOT SURPRISING.

Under the headlines "Doctor Not Surprised at — — ———'s Death," the *Boston Morning Journal* contains these lines: "The cause of death was found to be calcification of the althe romotus tissue, just above the aortic valve."

SLICK'S FEMALE HYDRO-EMETICS.

"Dr. —— Slick of ——— has moved to ——— to practice female therapeutics, metaphysics and hydro-emetics. Dr. Slick ought to be finer than silk."—*Adrian (Mich.) Press.*

POSTMORTEM TO BE POSTMORTEM.

"The medical fraternity . . . have obtained the consent of the young woman and her parents to hold a postmortem after her death."—*Bowling Green (Ohio) Sentinel.*

THE NEW DISEASE—LAPEROTOMY.

"The patient was suffering with laperotomy and after an examination last night an immediate operation was found to be necessary."—*Muscatine (Iowa) Journal.*

Medical Courts of Honor in Prussia.—Prussia has long had a professional court of honor for the army and for law, and in 1901 a similar tribunal was established for the medical profession in every district where there is a medical organization. The court consists of the president and three members of the local organization and a judge of a local court. There is a central supreme court of appeals, consisting of the director of the Prussian ministerial medical department, four members of the central committee of the "Aerztekammer," and two physicians appointed by the crown. The penalties which the court can impose are warning, reprimand, a fine not exceeding 3,000 marks (about $750) and the temporary or permanent withdrawal of the right to membership in the local medical organization. The "Allg. Med. Ct.-Ztg." has recently been publishing the decisions of the supreme court. Its findings do not always meet with the approbation of the profession as a whole. In a recent decision, for instance, it condemned the efforts of a physician who was endeavoring to secure the introduction of the free choice of a medical attendant by the members of the sick benefit societies. This is considered by the profession a much-needed reform and is generally known as "the American plan." Among the decisions is one that imposed a fine of $50 and costs on a physician who had associated himself with a notorious magnetic healer, confirming the decree of the local court of honor. Another imposed a fine of $25 on a physician who had applied to an insurance company for a position, threatening that he would induce certain families to withdraw from the society unless he were appointed to a position in it. In one decision the supreme court reversed the action of the lower court, which had imposed a fine of $75 on a physician because he had opposed the organization of a children's ward in the city hospital, on the ground that the existing medical staff would be inadequate for the enlarged responsibilities and the

children would receive merely secondary consideration. He urged the establishment of a separate children's hospital. The charge against him was dismissed. Another physician was also acquitted who had been fined by his local court of honor. He had been called to a child with the measles, but was dismissed by the father in a few days, before the disease had terminated. He sent in his bill for his services eleven days later, and the local court of honor reprimanded and fined him. One decree states that a physician who deviates from the customs of his colleagues is not unethical so long as the deviation is not derogatory to the honor of the profession. The court of honor expressly states that its power is not limited to contemporaneous occurrences, but that all unethical acts by any living Prussian physician, since his "approbation," come within its jurisdiction. It therefore imposed a fine of $25 on a physician who had forced his professional services on a certain patient previous to the organization of the professional court. Another decision condemned as unethical "control" visits under instructions from a third party without the knowledge of the attending physician, and also derogatory remarks in regard to the professional services of any other physician in the presence of the patient. Seventeen decisions have been handed down since last May, but most of them relate to merely technical legal points.

Book Notices.

VON DER NERVENZELLE UND DER ZELLE IM ALLGEMEINEN. Von Paul Kronthal. Mit 6 chromolithographischen, 3 hellographischen Tafeln und 27 Figuren im Text. Pp. 274. Jena: G. Fischer. 1902.

When this book of nearly 300 pages, dealing with one of the most absorbing topics of the period and illustrated liberally with heliographic and chromolithographic plates, came to us we hoped much from it and, on opening it, began its perusal with a certain degree of eagerness. An appetite already keen was further whetted by a caviar which the author provides, an introductory essay on methods, in which the theories of tissue-fixation and staining are discussed. The writer's apparent familiarity with some of the more recent theories of the structure of protoplasm, including that which looks on it as essentially a colloidal solution, his acquaintance with the fundamental researches of A. Fischer concerning the effects of the fixation-agents in common employ, his references to Gierke's views on the chemistry of staining processes and to O. N. Witts' hypothesis concerning the relation of the staining to the formation of so-called "solid solutions"—all gave us the impression that our author approached his problem armed with the most modern weapons for histologic attack. There seemed every reason to believe that in a research so auspiciously undertaken, leading to results requiring nearly 300 pages for their record, and published at great cost, something of more than ordinary interest would be found. A further study of the book, however, brings disappointment.

An examination of Kronthal's monograph shows it to be divided into two parts: (1) On the biology of the nerve-cell, and (2) on the cell in general and the nerve-cell in particular. The former part includes the introductory essay on methods, a description of the figures in his plates, a review of his personal observations and the conclusions drawn from them. The latter part assumes more the nature of a philosophic treatise.

The title given to Part 1 is "The Biology of the Nerve Cell." It consists of four chapters: 1. On Methods (referred to above). 2. Description of Figures. 3. Résumé of Personal Observations. 4. Inferences Drawn from Observations. In the chapter describing the figures the author gives only a series of legends for the various figures in the colored plates. The description of the first figure is fundamental, for on this a large part of the author's other work and his inferences are based. The figure purports to be a small blood vessel from the anterior horn of a rabbit five days old, under a magnification of 500. Besides the red blood corpuscles within the lumen of the vessel there is a mononuclear cell, filling the whole lumen at its level. This cell is designated a leucocyte, though it is certainly not a polymorphonuclear leucocyte, nor a lymphocyte, nor does it resemble any large mononuclear element one ever sees in the blood. It looks more like an endothelial cell than like a leucocyte, though it is very difficult to say from the drawing what the author has seen. Outside the vessel are two nuclei without visible protoplasm. What these were drawn from is doubtful, though it seems probable that the artist really had glia cells before him. The author calls them "two bodies just like leucocytes in their internal structure and staining behavior" (*Zwei in ihrem innerem Bau und tinctoriellen Verhalten den Leukocyten ganz gleiche Koerper*). As a matter of fact, they do not look at all like his suppositious leucocyte in the adjacent blood-vessel; much less do they resemble the real leucocytes one sees in the blood. The description of this first figure is followed by those of forty other figures in the colored plates and of seven photograms.

In chapter 3, in which Kronthal gives a résumé of his observations, he states that he finds everywhere in the central nervous system, in both white and gray substances, small cells which, in their form and behavior towards staining reagents, agree with leucocytes. They are usually irregularly distributed, but are often in rows. Often no protoplasm is to be seen about them. Fusions of two or more such nuclei are often met with. Various transition stages to the large cells of the anterior horns are described. Especial stress is laid on the occasional presence of a small cell inside the protoplasm of a large cell. The author states that an examination of the good illustrations in archives and monographs reveals "the lymph cells here described in the central nervous system, their relations to one another, to the similar but larger cells, as well as to the large cells in the gray matter" entirely correctly and sharply depicted. Anatomists call the smaller cells "free nuclei" (*freie Kerne*); pathologists and psychiatrists regard the relation of the smaller cells to the larger cells as evidence of degeneration. If they had used his alcohol-glacial-acetic-fixation method, Kronthal thinks they would have seen something entirely different in these structures.

In chapter 4, Kronthal gives his own ideas as to the interpretation of the observations. He decides that he finds leucocytes all through the normal central nervous system. A great many lymphoid cells come into the nervous system from the cerebrospinal fluid. All these "leucocytes," once inside, find themselves in a totally different environment from that to which they have been accustomed. The "nomadic" cell is compelled to "settle down." Again, the wandering cell here meets with chemical substances unknown to it—cerebrin, lecithin, protagon, neurokeratin, keratin, xanthin, hypoxanthin and inosit. As a result the leucocytes lose the properties they had in the blood and take on other characters. They fuse with one another and make larger cells. Gradually the large "cells" of the gray matter are built up out of them. A nerve cell never divides, not even in the embryo. But nerve cells are present throughout life, though they are constantly degenerating. "How then," asks the author, "is the nerve-cell supply maintained?" And his answer is "in the same way that it arose originally, viz., by slightly differentiated cells coming into connection with fibers and so becoming nerve cells." Kronthal believes, then, that nerve cells differ from all other cells and that their nuclei are different from all other nuclei, for the nuclei have not arisen by mitosis, but are the result of fusion of nuclear substances of other cells. The reason there are more leucocytes in the gray matter than in the white matter is that the nerve fibers are medullated and packed together like cables in the white matter, while in the gray matter the fibers are naked; the leucocytes easily wend their way through the relatively thick cables, but are caught and held fast when they reach the extremely fine fibers of the gray matter. The nerve cells are continuously dying and continuously arising anew through the fusion of leucocytes.

The first part of the book contains all the author's observations and the inferences drawn therefrom and occupies forty pages of the volume; the second part, in which he writes a philosophical treatise on "the cell in general and the nerve cell in particular" based on the theory just outlined of the origin of nerve cells from leucocytes, occupies two hundred and twenty-two pages. It seems to the reviewer not worth the while of

American readers to be burdened with even an epitome of this part, though it has been conscientiously waded through. Kronthal introduces in the various chapters the majority of the complex names that have been given to the different parts of the protoplasm and nucleus, and most of the theories that have gradually, at one time or another, been developed in cytology; he cites references from more than 200 writers, and tries to weave all into connection with the "nerve cells derived from fused leucocytes"; he coins, unnecessarily, a certain number of new names, which add to a nomenclature already overburdened.

Kronthal's reading seems to have been encyclopedic, but he appears to be devoid of sound judgment and the power of legitimate interpretation. How his book could have secured a publisher at all, much less the imprint of the celebrated house of Gustav Fischer of Jena, is difficult for American neurologists to understand. America has more than its share of worthless publications; but a few more such volumes from Germany and she will be outrivaled. If anyone thinks the verdict here pronounced unwarranted, let him but turn to chapter xiv of the second part of the book and read Kronthal's discussion of the origin of tumors, where he develops the view that tumors arise as a result of a fertilization process, the cell of one human being, perhaps an epithelial cell or a leucocyte, entering another human being and fertilizing some cell of the host; or let him read the last two pages in the book, of which the following is a translation of the first paragraph: "The bioids in the cell are alive, the trophomigma is dead. But the bioids can not live without the trophomigma. Hence, the 'living' is the whole cell. But this again can not live, if its trophomigma is not regularly supplemented, its nutrition maintained. Hence the 'living' is the cell with its nourishment. Nourishment for the cell consists of all kinds of substances, which, for the most part, constitute the earth. So the 'living' is the whole earth, and, since this, according to the Kant-Laplace hypothesis, is a product of the same forces as is every body in space and can not exist . . . without the other bodies, so the 'living' is the whole universe. Nature is the 'living,' not this or that body." To such levels may one soar, riding on the back of a supposititious leucocyte in a spinal capillary!

TOXICOLOGY. The Nature, Effects and Detection of Poisons, with the Diagnosis and Treatment of Poisoning. By Cassius M. Riley, M.D., Professor of Chemistry and Toxicology in Barnes Medical College. Cloth. Pp. 132. Price, $1.50. St. Louis: Lewis S. Mathews & Co.

This little work is a second edition, though not so stated on the title page. It is a convenient, handy manual of the principal facts in regard to poisons and their antidotes. It is neatly gotten up and seems, in the main, to cover its subject very satisfactorily. An addition which will probably be appreciated is the series of good illustrations of some of the more important poisonous plants. One or two inaccuracies are noticed, such, for example, as the description of the poisonous serpents which is not reliable, since it only describes the viperine type. This, however, is the only type represented in this country that is really dangerous; the coral snake, which is mentioned as being comparatively rare and not vicious and hardly considered poisonous. The statement that chloroform is the principal anesthetic used in this country strikes us as incorrect. We had supposed that ether was used more at the present time for general anesthesia.

WHERE AND HOW TO AMPUTATE. By Lowell E. Jepson, M.S. Paper. Pp. 13. Minneapolis: Jepson Bros.

One of the most important things to consider in making an amputation is where and how this shall be done so that the patient can with the most comfort and satisfaction wear an artificial limb. This booklet concisely states the principal points to be considered and this information will be of practical help.

FARMACOTERAPIA CON FORMULARIO. Dr. Prassitele Piccinini. Un volume di pag. viii-382, elegantemente legato in tela. Ulrico Hoepli. Milano. (L. 3,50.)

This is one of the neat and convenient little Hoepli pocket handbooks which will be of use to those who understand Italian and almost anyone can pick up enough of that language to utilize it in a short time. The numerous formulas are easily transposed to accord with the United States pharmacopeia.

State Boards of Registration.

Missouri Examination Dates.—The regular spring examination of candidates for the practice of medicine in Missouri will be held at the University Medical College, Kansas City, Mo., April 1 to 3 instead of April 3 to 5, which was the date previously set. At St. Louis examination will be made April 13 to 15.

Confederation Meeting.—The National Confederation of State Medical Examining and Licensing Boards will hold its next meeting at New Orleans, May 4, and urges every unaffiliated state or territorial board, whose duty it is to examine or license physicians intending to practice, to affiliate with the confederation. The secretary is Dr. A. Walter Suiter, Herkimer, N. Y. An invitation is extended to physicians and educators who are interested in the cause of higher medical education to attend.

Association News.

THE NEW ORLEANS NUMBER.

A REQUEST FOR INFORMATION CONCERNING TRAINS, EXCURSIONS, ETC.

The issue of THE JOURNAL of April 11 will be the New Orleans Number, and will contain the preliminary programs of each of the sections and an illustrated article descriptive of New Orleans. There will also be given railroad rates and a list of special trains, etc. All information concerning such matters should be sent us in time for publication in that issue. Special excursions have been arranged from New York, Chicago, Omaha and other points. We desire full particulars of all such trains. It is hoped that announcements may be made of the water-route excursions, one by the Mississippi River and one by the Atlantic Ocean. Any one desiring to have information on any particular point given in the New Orleans Number should write to THE JOURNAL making the request.

Stereopticon for Section on Ophthalmology.

The officers of the Section on Ophthalmology announce that Mr. Earl J. Brown has offered his services and the use of the Geneva Optical Co.'s stereopticon, with or without microscopic adjustment, for the use of such members of the Section on Ophthalmology as desire to have their papers illustrated thereby.

ACCOMMODATIONS AT NEW ORLEANS.

IMPORTANT ANNOUNCEMENT FROM THE HOTEL COMMITTEE.

We are in receipt of a letter from Dr. E. D. Martin, 810 Common street, New Orleans, chairman of the Hotel Committee, asking us to publish a notice and urge on those who expect to attend the New Orleans meeting the importance of writing him at once regarding reservation of rooms. This is of special interest to those who will be accompanied by ladies. He states that New Orleans is amply able to give comfortable accommodations to all at reasonable rates, although the space in some of the hotels will be taken up early. Those having the responsibility of this matter in New Orleans desire to emphasize the necessity of early action so that all may be accommodated, and that without any complications, on arrival.

Dr. Martin closes by saying: "The Information Bureau has a list of houses that we have visited and inspected and can vouch for, of over three thousand rooms, and there is no alarm necessary, as every one will be cared for at reasonable prices."

The New Orleans illustrated number of THE JOURNAL will be issued April 11, giving a full description of New Orleans and its accommodations.

NATIONAL BUREAU OF MEDICINES AND FOODS.

The President of the American Medical Association has appointed the following as a committee to represent the Association to investigate the proposed National Bureau of Medicines and Foods, this committee to report at the New Orleans meeting: Dr. E. Eliot Harris, New York; Dr. Solomon Solis-Cohen, Pennsylvania; Dr. H. Bert Ellis, California; Dr. N. S. Davis, Jr., Illinois; Dr. Philip Mills Jones, California.

Societies.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, FIFTY-FOURTH ANNUAL MEETING, NEW ORLEANS, MAY 5-8.

New Mexico Medical Society, E. Las Vegas, April 7.
Florida Medical Association, St. Augustine, April 8.
Western Ophthalmological and Oto-Laryngological Association, Indianapolis, April 9-11.
Tennessee State Medical Society, Nashville, April 14-16.
Medical Association of Georgia, Columbus, April 15.
South Carolina Medical Association, Sumter, April 15-16.
Iowa State Medical Society, Sioux City, April 15-17.
Medical Association of the State of Alabama, Talladega, April 21.
Medical Society of the State of California, Santa Barbara, April 21.
Mississippi State Medical Association, Greenville, April 21-23.
Medical Association of the State of Missouri, Excelsior Springs, April 21-23.
Kentucky State Medical Society, Louisville, April 22-24, 1903.
Texas State Medical Association, San Antonio, April 28.
Louisiana State Medical Society, New Orleans, April 28-30.
Medical and Chirurgical Faculty of Maryland, Baltimore, April 28-30.
Nebraska State Medical Society, Lincoln, April 28-30.
Illinois State Medical Society, Chicago, April 29-May 2.
Arkansas Medical Society, Jonesboro, April 30-May 2.

Kentucky State Medical Association.—The forty-eighth annual meeting will be held in Scottish Rite Temple, Louisville, April 22, 23 and 24.

Polk County (Iowa) Medical Society.—At its March 3 meeting this society decided so to change its by-laws as to admit any non-sectarian practitioner of medicine.

Medical Woman's Club of Chicago.—This club was recently organized, with Dr. Sarah Hackett Stevenson as president, and Dr. Henrietta Johnston, secretary and treasurer.

Sangamon County (Ill.) Medical Society.—At its monthly meeting, March 9, the constitution and by-laws of the society were amended to conform to those of the Illinois State Medical Society.

Hamilton County (Neb.) Medical Society.—The physicians of Hamilton County recently met at Aurora and organized a county society, with Dr. Edmund A. Steenburg president and Dr. Isaiah W. Haughey secretary, both of Aurora.

Louisville Practitioners' Club.—The annual meeting and banquet was held March 10. Dr. Oscar E. Bloch was elected president; Dr. Hugh N. Leavell, vice-president; Dr. John J. Moren, secretary and treasurer, and Dr. John K. Freeman, historian

Vernon Parish (La.) Medical Society.—This society was organized at Leesville, March 4, with Dr. Mark R. McAlpin, Leesville, president; Dr. C. C. Self, Hornbeck, vice-president; Dr. F. W. Dortch, Barham, secretary, and Dr. J. H. Word, Leesville, treasurer.

Holt County (Neb.) Medical Society.—The physicians of Holt County recently met at Atkinson and organized a county society, with Dr. Joseph L. McDonald, president; Dr. B. T. Trueblood, O'Neill, vice-president, and Dr. P. J. Flynn, O'Neill, secretary and treasurer.

Steele County (Minn.) Medical Society.—At the annual meeting, March 10, the following officers were elected: President, Dr. George Shulze; vice-president, Dr. John H. Adair; secretary, Dr. Allan B. Stewart, and treasurer, Dr. Warren C. Eustis, all of Owatonna.

Johnson County (Texas) Medical Society.—At the March 13 meeting, at Cleburne, the following officers were elected: President, Dr. W. P. Alexander, Cleburne; vice-presidents, Drs. Larkin L. Harris, Cuba, and R. H. Roark, Cleburne, and secretary, Dr John M. Huddleston, Cleburne.

Philadelphia Society of Tropical Medicine.—This society, whose object is the study of tropical diseases, has been formed, with the following officers: President, Dr. Thomas H. Fenton; vice-presidents, Drs. James C. Wilson and James M Anders; secretary, Dr. Joseph McFarland; treasurer, Dr. Edward B. Gleason, and executive committee, Drs. John V. Shoemaker, James Fenton, Judson Daland, Roland G. Curtin, Orville Horwitz and Hobart A. Hare.

Mercer County (Ohio) Medical Society.—On March 10, with the assistance of Dr. Horace Bonner of Dayton, Ohio, councillor for that district, the Mercer County Medical Society was reorganized at Celina, Ohio, in affiliation with the Ohio State Medical Association. These officers were elected: Dr. D. J. C. Wintermute, Celina, president; Dr. C. F. Bohnan, Coldwater, vice-president; Dr. D Herbert, Richardson, Celina, secretary; Dr. J. E Hattery, Celina, treasurer, and Drs. Joseph Sager and Stephen R. Wilson, Celina, and Philip F. Weamer, Coldwater, censors.

Erie County (N. Y.) Medical Association.—At the annual meeting, March 9, the resolutions prepared by Drs. Julius Ullman, De Lancey Rochester and Charles S. Jewett, the committee of public health, were unanimously adopted. They state that, because of an epidemic of typhoid fever at West Seneca, and because the drainage therefrom into Lake Erie is close to the intake of the water supply of Buffalo, that Buffalo's water supply is now a menace to the public health and that the authorities of West Seneca, Buffalo and New York state should take immediate action. Officers for the ensuing year were elected, as follows: President, Dr. Allen A. Jones; vice-president, Dr Carlton C. Frederick; secretary, Dr. Jacob S. Otto; treasurer, Dr. William I. T. Lornton, and member of executive committee, Dr. Joseph W. Grosvenor.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, Dec. 15, 1902.

The President, Alexander Lambert, M.D., in the Chair.

The Rational Treatment of Tetanus.

DR. WILLIAM H. LUCKETT made a brief report covering his experience in three cases successfully treated by intraspinal injections of tetanus antitoxin. One case received eight injections of from 8 to 15 c.c., or a total of 92 c.c., 159 minims of cerebrospinal fluid being withdrawn. Another case received five injections, a total of 59 c.c., and 532 minims of cerebrospinal fluid were withdrawn.

Modern Treatment of Urethral Stricture—Dilatation.

DR. J. W. S. GOULEY opened the symposium on the modern treatment of urethral strictures with a paper on their treatment by dilatation, laying down the following propositions: 1, Strictures at the meatus, being ordinarily dense, require incision; 2, strictures in the scrotal region which are narrow, indurated, resilient and refractory to treatment require internal incision; 3, strictures which render catheterism difficult or dangerous ordinarily require internal incision if in the scrotal region, and external incision if in the perineal region; 4, strictures in the perineal region which are narrow and complicated with fistulæ, and accompanied by masses, require external incision; 5, strictures in the perineal region complicated by abscess or extravasation of urine require immediate external incision; 6, traumatic strictures in the perineal region require early external incision, and 7, other urethral strictures are generally amenable to dilatation, or, at least, divulsion. In the early stages of strictures due to urethritis a permanent cure could be effected in a few months by simple dilatation, but in the long-standing ones months or even years of dilatation would be required. Continuous dilatation or the retention of an instrument for a few hours or even for one or two days, was indicated in narrow strictures, which failed to yield to ordinary dilatation or were complicated by retention of urine. Rapid dilatation, or the increase of the caliber of the urethra by three or four numbers at a sitting, was indicated in narrow strictures which threatened to produce retention of urine.

Urethrotomy.

"Internal Urethrotomy" was discussed by DR. L. W. HOTCHKISS, and "External Perineal Urethrotomy" by DR. PARKER SYMS. These two papers were given in abstract in THE JOURNAL, February 28, p. 608, ¶78 and ¶79.

Discussion.

DR. JOSEPH D. BRYANT said he had always been averse to very free division of the meatus urinarius. Continuous dilatation was a useful method, if proper judgment were exercised as to the length of time it is to kept up.

DR. JOHN F. ERDMANN spoke in favor of the Oberlander and Kollmann dilating instruments, and recommended dilating to the extent of from 2 to 4 mm. at each sitting, the treatment being repeated at intervals of four or five days. The continuous method was, no doubt, a useful one, but in many

of the cases in which it had seemed to be indicated he had succeeded by giving the patient a warm bath for fifteen to thirty minutes. In performing external urethrotomy without a guide he preferred to do the operation as advised by Dr. Bolton. In this method, the patient is placed in the reversed Trendelenburg posture, and an incision is made from one tuberosity of the ischium to the other in the form of an arc. This gives ready access to the apex of the prostate and, when this is found, puncture is made and then a dissection is made towards the membranous portion of the urethra. So far, this method had been invariably successful.

DR. E. L. KEYES, JR., said that it was certainly desirable to have a large incision, but the one recommended by the last speaker appeared to him to be an unnecessarily free dissection. If the dissection were carried down to the face of the stricture it would be comparatively easy to find the opening of the latter.

DR. FERD C. VALENTINE expressed himself as strongly in favor of the treatment of urethral strictures by dilatation, as opposed to operative measures, and condemned the too common plan of leaving this dilatation treatment to the patient himself.

DR. WILLIAM A. SHUFELT spoke in favor of an early resort to perineal section rather than indulging in much experimentation.

DR. ROBERT NEWMAN said that up to seven years ago he had successfully treated by electrolysis over 2,000 strictures of the urethra, and that number was now increased by probably 400 or 500. Relapses never took place, a statement regarding the permanency of the cure effected by this method of treatment which could be substantiated by patients in this city who had remained well for long periods of time—even as long as 26 years. This treatment by electrolysis of urethral strictures had been the subject of an investigation by a committee of his peers appointed by the American Electrotherapeutic Association in 1892. This committee, after long and careful investigation, reported that Dr. Newman's conclusions appeared to be well sustained by the statistics placed at its disposal, and that the experience of the committee also tended to confirm the value of the continuous current in resolving a large class of urethral strictures. The trouble with internal urethrotomy was that it would not restore the caliber of the urethra if the incisions healed by first intention, and if these incisions were kept apart and were made to fill up by granulation, a cicatrix would be formed, which would make the last state worse than the first. It was worthy of note that many authorities had in recent years declared themselves as opposed to internal urethrotomy.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Symposium on Colic.—I. In Infants.

Dr. Robert Hutchison, in *The Clin. Jour.*, states that the chief symptom of infantile colic is pain, expressed by crying. However, the cries of the infant should cause one to consider the possibility of earache, teething, renal colic (which is as frequent as in older people), phimosis causing straining on passing water and tenderness of the bones resulting from rickets, congenital specific disease, also mental deficiency causes the infant to cry without apparent cause. The signs of colic are: hardness of the abdomen, palpation of little coils of intestine, the tendency of the infant to draw up the legs, and perhaps convulsions. The passage of flatus with cessation of crying is a splendid sign of the proper diagnosis.

The first thing in the treatment is to apply warmth to the abdomen. This can be done by friction with warm oil, by warm fomentations or by poultices of linseed or mustard, and if necessary by the mustard bath. Warmth may be employed internally by means of enemas of hot water, injecting two or three ounces of water as hot as can be borne. Carminatives by the mouth, according to the author, aid in the expulsion of flatus, as peppermint water or dill water or small doses (ten drops) of sweet spirits of niter.

CORRECTION OF FEEDING AND OF CONSTIPATION.

If the infant is breast-fed inquiry may show that it is being fed irregularly and too frequently. Constipation must also be corrected. Massage to the abdomen is indicated in such cases following the course of the colon, applying it morning and evening for five or ten minutes. As to the medicines to be administered, they should consist of such preparations as have a tonic action on the bowel such as aloes combined with a little nux vomica as follows:

℞.	Tinct. aloes	gtt. iii-v	20-.30
	Tinct. nucis vom.	gtt. ss	03
	Tinct. belladonnæ	gtt. ii	12
	Syr. sennæ	gtt. xx	1 30
	Inf. gent. co. q. s. ad	℥i	4

M. Sig.: To be taken at one dose night and morning or in severe cases once in six hours.

The foregoing should be varied according to the age, remembering that children bear belladonna very well and strychnia badly. In case children should object to this mixture or are unable to retain it on the stomach the following may be given:

℞.	Confectionis sulphuris	℥ss	15

Sig.: One half teaspoonful at night or morning and night.

This is very agreeable for infants to take, but not so effective as the first combination.

In bottle-fed infants the frequent cause of colic is lack of cleanliness. The feedings are also given irregularly, and the food probably indigestible, owing to excess of casein products. In any case carminatives frequently give relief when given between meals. It should be alkaline on account of the extreme acidity present in the stomach and should be pleasant to take. The following combination serves the purpose:

℞.	Sodii bicarb.	gr. iiss	15
	Spts. ammon. arom.	m. iiss	15
	Glycerini	m. ii	12
	Aq. menth. pip. q. s. ad	℥i	4

M. Sig.: At one dose, to be given between the feedings.

In all such cases the abdomen must be kept warm. Binders should be used, if necessary, and the feet should be well protected.

If the child is gaining weight, even though there are attacks of colic, no great alteration in the food should be made. Some preparation of opium may be administered as follows:

℞.	Codeinæ	gr. 1/40 to 1/30	0015-.0020
	Glycerini	m. ii	03
	Aq. menth. pip. q. s. ad	℥i	4

M. Sig.: At one dose to relieve the colic.

If acute vomiting is present the infant should be starved for two, three or more days, if necessary. During this period water (boiled) must be given in abundance.

VOMITING.

Lavage is of great service in cases of acute or chronic vomiting. It is not so unpleasant as in adults, and is simple and harmless. If the eyelet of the tube becomes clogged with clots of casein they may be dislodged by blowing into the top of the funnel. If the contents of the stomach are sour sodium bicarbonate should be added to the water in proportion of one teaspoonful to the pint.

Calomel is one of the best medicinal preparations, given in doses of one-tenth grain (.006) to one-sixth grain (.01) every hour for six or seven doses. This may be followed by bismuth subnitrate or the carbonate in ten-grain (.6) doses.

In chronic vomiting the feedings should be diluted and regulated and the stomach washed out before resorting to drugs. Bismuth is the best, given in large doses. In other cases two or three minims of dilute hydrochloric acid is of service, combined as follows:

℞.	Acidi hydrochlor. dil.	m. ii-iii	12-.20
	Glycerini	m. ii	12
	Aq menth. veridis q. s. ad	℥i	4

M. Sig.: At one dose.

ACID FERMENTATION.

When the contents of the intestine are undergoing acid fermentation causing colic, the following antacid aperient has been recommended:

℞.	Pulv. rhei comp.	ʒi	4
	Spts. ammoniæ fœtidi	ʒss	2
	Tinct. card. comp.	ʒiii	12
	Spts. chloroformi	ʒss	2
	Aquæ carui q. s. ad	ʒiss	45

M. Ft. mistura. Sig.: One or two teaspoonfuls, according to the age of the child, every hour until relieved.

Yeo recommends the following as a clyster when there is difficulty in getting the child to take medicine by the mouth:

℞.	Olei ricini	ʒi-ʒiii	4.-12	
	Olei rutæ	mii-vi		12-.35
	Potassii carb.	gr. v-xv		30-1.00
	Aquæ q. s. ad	ʒii-iv	60-120	

M. As a high enema. If, after free evacuation of the bowels, there is still pain and distress the following may be given as an enema:

℞.	Tinct. opii	m. i-ii		06-.12
	Emuls. amyli	ʒi-ʒii	30-60	

M. Sig.: As an enema in case the child is over six months of age; or:

℞.	Tinct. cascarillæ			
	Tinct. krameriæ, āā	m. x		65
	Olei anthemidis	m. i-ii		06-.12
	Syr. simplicis	ʒiiss	10	
	Aq. q. s. ad	ʒii	60	

M. Sig.: One teaspoonful every two hours by the mouth.

II. Colic in Adults.

Yeo, in his *Clin. Ther.*, recommends, in the treatment of colic in adults, the administration of one to two pints of warm soapsuds, containing one or two tablespoonfuls of castor oil and in flatulent distention a tablespoonful of spirits of turpentine. Locally, he recommends hot flannels or a linseed poultice sprinkled with laudanum applied to the abdomen. The surface of the abdomen may be rubbed with opium or belladonna liniment, employing massage at the same time. If the trouble be confined to the small intestine a mild cathartic such as castor oil or calomel should be given by the mouth. In severe cases a hypodermic of morphin may be given. Atropin relieves intestinal spasm by relieving the irritability of the intestinal nerves and does not have so ill an effect on the intestinal nerves as has opium. The following combination is recommended by the author:

℞.	Tinct. belladonnæ	ʒss	2
	Tinct. card. comp.		
	Spts. ammon. arom.		
	Spts. chloroformi, āā	ʒii	8
	Sodii bicarb.	ʒi	4
	Aquæ fœniculi q. s. ad	ʒvi	180

M. Ft. mistura. Sig.: Two tablespoonfuls every hour until relieved.

In gouty individuals accompanied by constipation warm alkaline medicines are recommended:

℞.	Ammon. carb.	gr. xl	2	65
	Sodii bicarb.	gr. lxxx	5	
	Spts. chloroformi	ʒiii	12	
	Tinct. zingiberis	ʒi	4	
	Aquæ cinnamomi q. s. ad	ʒviii	240	

M. Ft. mistura. Sig.: Two tablespoonfuls combined with one of hot water every three or four hours.

As a pill to be taken at bedtime in these gouty cases, the following:

℞.	Ext. colchici	gr. ss	03
	Pil. rhei comp.	gr. iv	25

M. Ft. pilula No. i. Sig.: One such to be taken every night.

FLATULENCE.

The following combination is of service in checking decomposition:

℞.	Ext. nucis vom.	gr. iss	09
	Argenti nitratis	gr. ii	12
	Ext. lupuli	gr. xii	75

M. Ft. pil. No. vi. Sig.: One pill three times a day; or:

℞.	Mag. carb.	ʒi	4	
	Pulv. rhei	ʒss	2	
	Tinct. rhei	ʒiii	12	
	Tinct. opii	m. xv	1	
	Spts. anisi	m. vi		35
	Spts. menth. pip.	ʒii	8	
	Aq. destil.	ʒvi	180	

M. Sig.: Shake. One tablespoonful three times a day; or:

℞.	Spts. chloroformi		
	Tinct. cardamom. co., āā	ʒi	30

M. Sig.: One teaspoonful in water every half hour; or:

℞.	Olei cajuputi	m. iv		25
	Sacch. albi	gr. x		65
	Tinct. jalapæ	ʒi	4	
	Decoct. aloes comp. q. s. ad	ʒiss	45	

M. Sig.: At one dose; or:

℞.	Spts. chloroformi	ʒi	4	
	Morph. acetatis	gr. iss		09
	Olei anisi	m. viii		50
	Olei menth. pip.	m. viii		50
	Syr. acaciæ	ʒii	8	
	Aq. camphoræ q. s. ad	ʒii	60	

M. Sig.: One teaspoonful at a dose and repeat in an hour if necessary.

The *Ther. Gazette* recommends the following to relieve the flatulent colic in women:

℞.	Spts. ammon. arom.	ʒiss	6
	Tinct. belladonnæ	ʒss	2
	Tinct. zingiberis	ʒi	4
	Spts. chloroformi	ʒi	4
	Aq. menth. viridis q. s. ad	ʒvi	180

M. Sig.: One tablespoonful every two hours if necessary.

Infant Feeding.

Prof. Rotch, in a recent address before the medical students of Chicago, emphasized the importance attached to accurate knowledge of preparing food for the infant and the ability to write a proper prescription whereby it may be prepared in the laboratory. He dwelt on the fact that infants thriving on the mother's milk containing a definite amount of proteids could not be placed on artificial food containing the same amount of proteids obtained from the cow's milk. The casinogen in the proteids of cow's milk seems to be the disturbing factor, thus producing the curds present in the stools, rather than the whey proteids. According to the author the casinogen should be reduced to a minimum to begin with and make up the necessary per cent. of proteids from the whey proteids. By overlooking the presence of the casinogen we fail in our efforts, where otherwise success might be obtained. That physician, according to Prof. Rotch, is not versed in the modern methods of percentage feeding who resorts to the use of the cereal products, otherwise starch, in combination with the milk in order to reduce the curds in the stools. The presence of starch more finely divides the curds and does not reduce their quantity. When sugar is deficient in the food he also insists on making up the deficiency by adding milk sugar (lactose) and not cane sugar as recommended by some authors. He, however, favors the mother's milk if it is borne by the infant to any moderate degree rather than to resort to artificial feeding.

Medicolegal.

Test of Nature of Incorporated Hospital Association.—In the case of Craig vs. the Benedictine Sisters' Hospital Association, the Supreme Court of Minnesota follows the rule that the nature and character of a corporation must be determined from its articles of association, and that its character can not be changed or modified by oral evidence that it is not in fact such a corporation as its articles purport to make it; that, in determining the character of corporations, the articles of association are the sole guide. In this case, the association was incorporated under the provision for the formation of corporations for a pecuniary profit, and, on the face of its articles of association, appeared to be an ordinary business corporation. The court holds that evidence offered for the

purpose of showing that it was in fact a charitable association, and not what its articles purported to make it, was incompetent and inadmissible. Whether a corporation organized for purely charitable purposes, and dependent on voluntary contributions for its support, is liable in damages for the negligence of its officers and servants, the court leaves an open question, so far as it is concerned.

Contract of Physician with Voluntary Association.—In the case of McDermott vs. the St. Wilhelmina Benevolent Aid Society, an action brought by a physician against the individual members of the society, a voluntary association, to recover for professional services, the Supreme Court of Rhode Island holds that, nothwithstanding the association was a voluntary one and the physician did not receive a majority of the votes cast, nevertheless he was elected the physician of the association, and the individual members thereof were bound by the contract entered into with him. It appeared that he did receive more votes than any other candidate; that the president declared him elected, and directed the secretary to notify him of his election, to which proceedings no objection was made. Under these circumstances, the court does not think that the irregularity mentioned could properly be held to render the action void. It says that it was merely a technical violation of the rule, and it was doubtless competent for the society, if it saw fit, to dispense with the formality of taking a second vote. Moreover, by allowing the president to declare the physician elected as the physician of the association without dissent on the part of any one present, his election was practically made unanimous. Besides, the court holds that, after the association had recognized the fact that the physician was occupying the position to which he had thus been chosen by directing the secretary to notify him of his discharge therefrom and subsequently choosing another "for the balance of the present term," the technical irregularity stated could not be set up as a defense to his right of recovery for services rendered. It is a matter of common knowledge, the court says, that both corporations and voluntary associations often disregard, to some extent, the strict rules of procedure prescribed in their charters or by-laws in transacting their internal affairs; but, so far as this court is aware, the courts have not held that such technical variation from prescribed forms relieved them from liability to outside parties doing business with them in good faith on the strength of what appeared by their own records to have been regularly and properly done. Of course, the court says, no authorities need be cited to support the physician's claim that the contract with the association was consummated on his depositing his acceptance thereof in the mail, the acceptance having been made within a reasonable time after notice of the election. As to members of the association who were not present when the election took place, the court says that the presumption is that each person, on becoming a member of an association of this sort, knows and consents to be governed by the rules thereof; and hence whatever action is properly taken thereunder by the association is as binding on those members who were absent at the time it was taken as on those who were present. This individual liability arises, not on the ground that the members of such an association are partners, for they are not, but on the ground that the society is their agent in the premises; and hence they are bound by its acts if done within the scope of its authority. No compensation having been expressly fixed on by the association at the time of the election, and it appearing that the physician had previously served them on certain terms, the court holds that the presumption was, in the absence of any statement or agreement to the contrary, that his compensation would be the same as that previously paid. And it thinks pertinent instructions in which the jury were told that when one enters into the service of another for a definite period, and continues in the employment after the expiration of that period without any new contract, the presumption is that the employment is continued on the terms of the original contract. An express request from the parties sued to the physician to render services for them implied an agreement on their part to pay him what his services were reasonably worth.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Philadelphia Medical Journal.

March 14.

1 *Tropical Diseases—Eight Lectures in a Course on Tropical Diseases. Charles F. Kieffer.
2 Occlusion of the Superior Temporal Artery of the Retina in a Young Anemic Girl. G. E. de Schweinitz.
3 *Collective Investigation Concerning the Value of Silver-Nitrate Injections in the Treatment of Pulmonary Consumption. Thomas J. Mays.
4 *Some Points in the Management of Infectious Diseases. A. G. Young.
5 *The Treatment of Tropical Dysentery with Sulphur. T. H. Weisenburg.

1. **Tropical Diseases.**—The eighth lecture of Kieffer deals with the subject of filariasis. Of the various species of filariæ there are only two inhabiting the blood that have a pathologic importance. They are the *Filaria nocturna*, formerly called *Filaria sanguinis hominis*, and the *Filaria perstans*. The former is the cause of the well-known condition known as elephantiasis. It is found in almost all tropical and subtropical countries, as far north as Charleston, S. C. In the large majority of cases it causes no symptoms, but in exceptional instances the conditions known as elephantiasis, chyluria, etc., are produced. They may be divided into two classes, those which are due to lymph varices and those due to edema or lymphatic obstruction. The worms may block the thoracic duct or they may injure some special portions of the lymphatic system and produce elephantiasis. He describes the different conditions and remarks briefly in regard to *Filaria perstans* which is supposed by Manson to cause the Congo sleeping sickness which has become so severe a scourge in some parts of East Africa. There still remains a group of filariæ that invade the connective tissues rather than the lymph and the blood stream, the Guinea worm, the eye worm, and one or two others. Only the first of these is of special interest, as it may produce serious abscess and even death. The invasion of all forms of filaria is usually through drinking water, at least that is presumed to be the case.

3. **Silver Nitrate Injections in Tuberculosis.**—Mays has experimented with silver nitrate injections in the treatment of pulmonary consumption in fifty-two cases, with the result of arresting eleven and improving twenty-two, while seven were not improved and five died. There was a marked gain in weight in a large proportion of cases. Cough was relieved, which, he thinks, is due to stimulation of the vagus, increasing its resistance. Vomiting and night sweats were also notably relieved. He says:

> Taking a general survey of the above collection of cases, and the therapeutic results which have been obtained through them, I think it is plainly evident that the silver nitrate injections possess a decided antagonism to the pathological and complex process which we known as pulmonary consumption. It must be borne in mind, however, that in forming an estimate of the action of a new remedy it is comparatively easy to overrate its virtues and to ignore the efficacy of other influences that enhance its final effects. But, making due allowance for all such weaknesses, we have in this collection a confirmation of the results which were obtained by myself with the silver injections employed in a large number of cases more than four years ago, differing from mine in the fact that they are more forcible, because they emanate from a number of independent observers in whom the personal equation was entirely eliminated. In conclusion, I trust that this research into the clinical action of silver nitrate in the treatment of phthisis will merely be an entering wedge into this inviting field of therapeutics and will induce many others to take up the work and develop its possibilities.

The directions for giving the injections are as follows:

> Select for injection a point immediately over, or slightly behind, the pulsating carotid artery in the neck, between the angle of the jaw and the clavicle. Lift the skin between the thumb and forefinger of the left hand and puncture only immediately through the skin. Inject five minims of a 2½ per cent. solution of cocaine hydrochlorate, detach the syringe from the needle and let the latter remain in the puncture. Wash out the syringe with water, draw a 2½ per cent. solution of silver nitrate into the syringe, attach the latter to the needle and throw in 5 minims of same. Or, if cocaine nitrate can be secured, mix 6 grs. of this and 6 grs. of silver nitrate with half an ounce of water and inject 10 minims. This is a preferable method, but as yet there is very little cocaine nitrate on the market. As a rule, most of the injections should be given on the side below which the affected lung is located.

4. **Infectious Diseases.**—Young's article points out the various disorders which should be subject to notification and

isolation, including under this head tuberculosis, diphtheria, scarlet fever, typhoid fever, smallpox, pneumonia, grippe, whooping cough and measles.

5. **Tropical Dysentery.**—The results of treatment simply by the use of sulphur water of a special spring in the island of Marinduque, P. I., in cases of tropical amebic dysentery are reported by Weisenburg. The acute cases were kept quiet and simply put on a milk diet and made to drink the sulphur water of the spring exclusively and bathe in it every morning. The chronic cases were allowed to take moderate exercise, a soft diet, and take a bath twice daily and drink the sulphur water. In both classes improvement was marked. The patients gained in weight and strength and in three to six weeks were pronounced cured. A notable fact also was that dhobie itch, the prevalent skin malady of the tropics, was also cured by the same treatment. The spring is a large one and has long had a local reputation throughout the islands. Its water can be purchased in the drug stores in Manila.

Medical Record, New York.

March 14.

6 *Some Observations on Vulvovaginitis in Children (with Special Reference to the Gonorrheal Form); Its Treatment and Possible Sequelæ. Samuel W. Bandler.
7 *Clinical Notes on a Series of Nine Consecutive Cases of Ectopic Gestation. Hiram N. Vineberg.
8 *Mosquitoes, Quarantine, and Some Statistics with Regard to Yellow Fever. Quitman Kohnke.
9 *The Indications for Opening the Pars Mastoidea. L. D. Brose.
10 *Hot Decinormal Salt Solution Injections in the Treatment of Hemorrhoids. Lucien Lofton.

6. **Vulvovaginitis in Children.**—Bandler's article deals especially with the gonorrheal form, though he admits that there may be a coccal vulvovaginitis not gonococcal. The most important sequelæ in the way of permanent injury is atresia of the hymen or of the vagina, and a considerable portion of his paper is devoted to this subject. All the lesions of the adult, however, may be reproduced in children.

7. **Ectopic Gestation.**—The nine cases reported by Vineberg are of interest as illustrating special points in the occurrence of this condition. In the first there was no delayed or irregular menstruation and the diagnosis of ovarian disease was a perfectly natural one. The second was a typical case. Others were complicated, with menstrual irregularities in the normal condition, which obscured the diagnosis. Others gave symptoms of early miscarriage. In still another an attack of acute appendicitis was thought probable. In all but two there was more or less elevation of temperature. In two cases it reached 102.6 and in one 103.8. It has been generally thought that absence of fever in ectopic pregnancy is an important diagnostic point, but these cases disprove this as an invariable rule.

8. **Yellow Fever.**—Kohnke takes issue with Souchon in regard to questions of quarantine in yellow fever, holding that the mosquito theory is absolutely correct and that the sulphur disinfection of vessels for the destruction of the mosquito is a matter which is being neglected under present rules in New Orleans.

9. **Mastoid Operations.**—Brose reports a case and notes the special indications for operation on the mastoid, such as pain, fever, pressure, tenderness, percussion dullness which is uncertain and should be sought for, swelling and edema, swelling of the posterior superior bony meatus wall giving rise to narrowing or total occlusion of the meatus, fluctuation in the external swelling, which should be sought for earlier in children than in the adult. With such symptoms, if persistent eight or ten days without improvement in spite of treatment, or when they have wholly disappeared, either with or without closure of the drum perforation, and again returned in severity and persistency, mastoid operation may properly be performed. Chronic disease of the mastoid may exist for years without sufficient evidence to warrant operative interference, but there is always danger of serious complications. Operative interference is urged for those that can not be otherwise relieved. As symptomatic of pus retention, we have a sudden diminution or total cessation of a profuse ear discharge, narrowing of the meatus or clogging of the tympanic cavity by granulations or polypi, fever and symptoms of meningeal irritation. External abscess formation, with fistulous opening, leading into the middle ear or mastoid, in the adult especially, indicates operation. In children, however, drainage is good, nature may bring about a cure when assisted by local treatment. Cholesteatoma in the temporal bone may also require removal through a mastoid operation. The case reported illustrates a fatal termination following caries with acute mastoiditis. A large part of his paper is given up to the pathology of the condition and the special symptoms.

10. **Hemorrhoids.**—Lofton has employed hot decinormal saline solution injections in the treatment of piles with success in seventeen cases. The hot water burns the flesh, producing a simple scalding process which acts as does an escharotic, hence, a sloughing process must follow, resulting finally in elimination followed by granulation and a cicatrix. Owing to the great heat incorporated in this method, the albumin of the blood is immediately coagulated, and thus we have a circumscribed area of tissue walled off. The method, he says, is simple, cheap, effective, non-toxic and always safe. Boiling water thus used seems to act, in a measure, as a local anesthetic.

American Medicine, Philadelphia.

March 14.

11 *Obstinate Subacute Rheumatism. James J. Walsh.
12 *On Transplantation of Tumors. Leo Loeb.
13 *Fibroma of the Ovary with Ascites. Theodore A. Erck.
14 *Analyses of the Fluids from Two Cases of Hydrops Cystidis Felleæ. Torald Sollmann.
15 Emphysema Due to Injury of the Upper Air Tracts by Vomiting and Protracted Hysteric Eructations Following Ether Anesthesia for Appendicectomy. Frank Blatchford.
16 *Briefs on Physical Training. G. Frank Lydston
17 The Modern Maternity Hospital: Its Clinical Material Equipment and Influence upon Specialization in American Surgery. Barton C. Hirst.
18 Some Problems of Preventive Medicine. (To be concluded.) Burnside Foster.

11. **Obstinate Subacute Rheumatism.**—The failure of the salicylates in certain cases is first noticed by Walsh. He calls attention to the fact that a number of cases disagree with the general consensus of opinion in regard to the salicylates being the best remedies for rheumatic disorders. Among the conditions which may cause confusion and be erroneously treated with these drugs he enumerates gout, which he thinks is less infrequent in this country than has been supposed, certain nervous disorders, neuritis, alcohol and lead poisoning, and the joint affections of scurvy and hemophilia, influenzal and dysenteric joint symptoms, bronchiectatic and other joint disorders. He says that most of the cases of obstinate subacute rheumatism are not simple rheumatic arthritis, but consist of the joint affection developing in the presence of a diathesis, such as gout, or some blood dyscrasia, or some toxemia, or a neurosis, or a hypersensitive condition of the vasomotor system, all of which hinder the normal reaction and prevent the prompt relief of symptoms that usually occurs.

12. **Transplantation of Tumors.**—In a former article in the *Journal of Medical Research*, abstracted in THE JOURNAL, xxxix, 113, p. 399, Loeb reported the results of transplantation of sarcoma and mixed tumors. In the present communication he discusses the resisting powers of excised pieces of tumors and the influence of temperature, of preservatives, such as glycerin and potassium cyanid. He also speaks of the influence of bacterial products on the growth of transplanted pieces of tumors, the injection of tumor juice, the injection of filtrates of tumor tissue in sodium chlorid solution and, lastly, the injection of hyaline bodies to be found in pieces of tumors kept outside of the body. The conclusions to which the experiments seem to lead are given by him as follows:

A micro-organism living outside of tumor cells and passing through the pores of the Berkefeld filter is not, in all probability, the cause of the formation of sarcoma in rats.

A micro-organism living outside of tumor cells and resembling organisms like the tubercle bacillus, or belonging to the class of blastomycetes, is probably not the cause of the formation of sarcoma. Such a micro-organism would probably not be made absolutely ineffective by heating to 45 C. for half an hour. A microscopic examination of tumors not secondarily infected does not show any bacteria or blastomycetes. No giant cells characteristic of granulomas caused by the tubercle bacillus or by the blasomycetes can be found in these sarcomas.

The following possibilities remain: The formation of sarcoma is caused by an organism living outside the tumor cells, possessing,

however, a similar sensitiveness to heat as do the tumor cells themselves. Such organisms would have to be, as we may conclude from the foregoing experiments, larger than red blood corpuscles, as they seem to be unable to pass, at least under ordinary circumstances, through filter paper.

But, since a careful microscopic examination of the tumors showed no structures other than tumor cells and their products of degeneration, and since, also, injection of the hyaline bodies referred to had negative results, the existence of such organisms would seem to be improbable. Still, further experiments ought to be made before these can, with certainty, be excluded.

The remaining possibilities are that a very small micro-organism not capable of living outside of tumor cells is present; and, lastly, that a micro-organism is not the cause of tumor formation. It would, therefore, be impossible to produce tumors by the injection of micro-organisms alone, if a micro-organism incapable of living outside of tumor cells is present or if no micro-organism is the cause of tumor formation.

He adds some further results, stating that there is no appreciable period of latency in the growth of the peripheral transplanted tumor cells, that the serial sections have shown that apparently separate tumor nodules of sarcoma may be connected by rows of cells, just as Petersen showed the connection of apparently separated carcinomatous cell nests, and also that active mitotic cell proliferation takes place in tumor nodules. Sarcomatous cells are phagocytic and may take up extravasated blood corpuscles. The transplantation of sarcoma was even more frequently successful than that of carcinoma. He finds the results of transplantation of tumor cells as compared with that of ordinary tissue, seem to conclusively show that mere displacement of adult tissue, if it plays any part at all in tumor production, which is not probable, is certainly unessential. The fact that non-infected fresh pieces of sarcoma may be successfully transplanted into the majority of animals of the same species, shows that a predisposition is not the main factor which prevents or favors metastases. The transplantation of tumor cells through so many generations would seem to prove that the life of ordinary tissue may, under conditions not realized in one organism, be able to continue much longer than the individual to which they belong.

13. **Fibroma of the Ovary.**—Erck reports a case which he remarks is of interest from the standpoint of the association of ascites with solid ovarian growths. In fibroma of the uterus such complication is rare, while it is common in fibroma of the ovary. He thinks that, possibly, ascites may be due to something intrinsic in ovarian growths, perhaps a secretion.

14. **Hydrops of the Gall Bladder.**—From a chemical examination of two cases of occlusion or atresia of the cystic ducts, Sollmann deduces the following conclusions: The contents of the human gall bladder in cases of obstruction of the cystic duct, whether this is congenital or through a gallstone, consists in a dilute solution of true mucin, of the molecular concentrations of the serum, devoid of bile acids or pigments, of ferments and of sugar. Traces of coagulable proteid may be present. No nucleoalbumin was found. The gallstones producing the obstruction consisted essentially of cholesterin.

16. **Physical Training.**—In this fifth section of his series, Lydston gives the details of muscle training, calling attention to the importance of the subjects fixing their attention on special groups of muscles. He also remarks on the vital importance of training the abdominal muscles, which he believes constitute the keynote of the athlete's body. The details of his paper can be best studied from the paper itself.

New York Medical Journal.

March 14.

19 *Some of the Complications of Abdominal Surgery. Robert T. Morris.
20 *The Diagnosis and Treatment of Hereditary Syphilis. E. Harrison Griffin.
21 *Some Observations on Tuberculosis. J. O. Cobb.
22 Report of a Case of Inguinal Hernia with Incomplete Sac. J. Shelton Horsley.
23 *Transportation and the Ophthalmic Referee. Justin L. Barnes.
24 Treatment of Infantile Convulsions. (To be continued.) Adah McMahon, Edward M. Thompson, H. R. Coston, G. J. Ellis and W. D. Macon.

19. **Complications of Abdominal Surgery.**—Morris first notices the complications due to anesthesia, such as chloroform paralysis of the vasomotors, the effect of ether on the kidneys and stomach and bronchial membranes. He has never in his observation met with a death from the anesthetic, but, in a number of cases, he has been anxious. Ether complications are not certain as regards prognosis, but are usually transitory. In some cases where acute nephritis has existed this seems to have been relieved by the anesthetic. Iodoform poisoning is also noted, as well as hemorrhage. The former is often mistaken for septicemia, but there is a striking difference, in that the septic wound looks ill as well as the patient, while in iodoform poisoning the wound appears to be doing very well, while the patient is not. He has seen one death occurring from iodoform poisoning after removal of all sources of the intoxication. The danger of shock in too long operations is also important, as well as sepsis.

20. **Hereditary Syphilis.**—Griffin reports a number of cases showing the mistakes in diagnosis that have been made in regard to this condition. He remarks that it is a common mistake to suppose that Hutchinson teeth are present as a rule; in fact, they are a rarity. The reason cases are not diagnosed is largely due to the reliance placed on this rare sign, the lack of information as to the manifestations of hereditary syphilis, and neglect to examine the buccal cavity.

21. **Tuberculosis.**—Cobb reviews some general facts and theories as regards tuberculosis, and is inclined to the belief that the danger of bovine tuberculosis is not altogether an imaginary one, though he admits that nearly all human tuberculosis is contracted by inhalation.

23. **Transportation and the Ophthalmic Referee.**—The importance of eye examinations of railroad employes, etc., is insisted on by Barnes, who criticizes the methods often employed, especially by lay examiners. Complete and accurate records should be kept, and the tests be thorough for color sense, vision and hearing. Lay examiners should submit all but the simpler, less complex cases to the medical referee, who should exercise a general supervision over the whole examinations. The rules for examining should not be left to private corporations, but should be regulated by the state.

Boston Medical and Surgical Journal.

March 12.

25 On the Educational Value of the Medical Society. William Osler.
26 *Limitations of the Uhlenhuth Test for the Differentiation of Human Blood. A. E. Austin.
27 *Report of a Series of Cases of Movable Kidney. H. D. Chadwick.
28 The Composition and Alcoholic Content of Certain Proprietary Foods for the Sick. Charles Harrington.
29 A Case of Habitual Dislocation of the Shoulder Joint. J. Collins Warren.

26. **Uhlenhuth's Test.**—Austin has experimented on the Uhlenhuth test, injecting rabbits and guinea-pigs several times with human blood to produce a serum containing precipitin for the human blood. Following Uhlenhuth's directions exactly he found the test not as fully applicable as it had been represented, and that it can be employed only under very limited conditions. Other fluids of the human body, like effusions and exudates, were of little value, and fluid from placentas could only be used when it was perfectly fresh. Much longer time and more repeated injections were necessary than he had been led to suppose. His experiments are given in detail.

27. **Movable Kidney.**—Chadwick has treated, during the last three months, twenty-eight patients suffering from symptoms referable to movable kidney, some of which are described in detail. He thinks the proper treatment of the affection depends more on the severity of the symptoms than on the amount of inability. Movable kidney often causes no troublesome symptoms, but when it affects the patient's health or limits her or his usefulness, there is only one treatment—that is, fixation—that will cure this condition. Palliative treatment has been of no value in his hands.

Medical News, New York.

March 14.

30 *The Etiology of Colds. James J. Walsh.
31 *Surgical Treatment in Non-Malignant Diseases of the Stomach: Results and Indications. Henri Hartmann.
32 *The Etiology of Ectopic Gestation. Samuel W. Bandler.
33 Apparent Fetal Substitution; Medicolegal Note. Allen J. Smith.
34 *The Elective System in Medical Schools. Daniel N. Eisendrath.
35 *The Symptomatology of Tabes; an Analysis of 140 Cases of Locomotor Ataxia. Joseph Collins.

36 *Primary Tuberculosis of the Ear Followed by Mastoiditis: Report of Four Cases. M. A. Goldstein.

30. **The Etiology of Colds.**—The indefinite and little understood term, "cold," is remarked on by Walsh, who points out that cold can be only a predisposing cause, while, in most cases, it is a direct bacterial infection that occurs. Occasionally the breathing in of irritating substances may give rise to a catarrhal condition, resembling a cold. He considers that the method of steam and hot water heating in our houses, making no provision for the moisture necessary to keep the air in a properly humid condition, is especially favorable to the production of colds, particularly when it is suddenly changed to the cold air outside. He also notes that such effects are apt to occur when an individual comes out of a warm room, where a large number of persons is assembled or in which there has been considerable dust present, because of the movement of the crowd, dancing or gymnastics. Such places, moreover, are often absolutely shut off from sunlight, theaters particularly, and lose the benefit of this great bactericide. Delicate individuals should be warned of the necessity for avoiding such places, and stronger persons should not go immediately to the outer air without a preliminary delay in the corridors or foyer. Colds in the muscles are also mentioned, which are more often spoken of as neuralgia or rheumatism. The mechanism seems to be paralysis of the vasomotor apparatus in the parts from chill. A striking indication that a cold is due to microbic invasion is the fact that the process is nearly always accompanied by the occurrence of fever. Chilliness gives an indication for the first step in treatment, the elimination of toxic matters from the blood. The use of remedies that tend to lock up the secretions at the beginning of a cold is almost sure to be harmful.

31. **Gastric Surgery.**—The importance of early diagnosis as affecting the mortality of operation is first noted by Hartmann, who has examined twenty-nine patients operated on, noting the results of operation, and finds in non-malignant disease real and permanent benefit is the rule. Some special indications should be followed. A correct diagnosis is important. Atonic dilatation is rarely an indication for surgical interference; medical treatment will suffice. In pyloric stenosis operation is indicated as soon as the diagnosis is made, especially in all fibrous pyloric strictures. We can not be so positive in cases of ulcer of the stomach, as ulceration without complications is generally cured by medical treatment. In chronic ulcer he thinks that surgical treatment is indicated only when mechanical troubles exist and give the pyloric syndrome. Even if this be cured, the diseased cicatrix will produce a fibrous stricture more serious than the previous condition. He does not consider excessive hematemesis an indication for operation, but small and repeated hematemesis requires it. As to operation, he would only perform gastrectomy where an epithelial grafting is feared. Pyloroplasty of the German surgeons is not possible in cases of ulcer or of fibrous strictures of the pylorus in consequence of the rigid state of the tissue. Its rôle is a very limited one; he does not perform the operation. Gastroenterostomy seems, in the non-malignant diseases of the stomach, the best operation. With his technic, which he has described in his *Chirurgie Gastro-intestinale*, he has not observed one case of circulus viciosus in his 53 operations.

32. **Ectopic Gestation.**—Bandler reviews the causes of ectopic gestation and concludes that injury to the cilia is the chief, if not the sole, etiologic factor.

34. **The Elective System in Medical Schools.**—Eisendrath points out the benefits of the elective system in the last two years of the medical course, especially in our large institutions of the present time where otherwise direct contact with the teacher is not so practicable.

35. **Tabes.**—Collins finishes his article on tabes and gives the following percentage of the frequency of the most conspicuous subjective and objective symptoms: Lancinating pain, 90; Romberg sign, 85; loss of Achilles-jerk, 88; loss of knee-jerk, 84; Argyll-Robertson pupil, 77; ataxia of gait, 73; hypotonia, 72; paresthesia, 73; anesthesia, 67; analgesia, 58; bladder symptoms, 55; impotency, 50; crises, 20; ocular paralysis, 10; arthropathies, 5; trophic symptoms, 8; optic atrophy, 14; girdle sensation, 50; deep sensibility, 63; diplopia, 22.

36. **Primary Tuberculosis of the Ear Followed by Mastoiditis.**—Goldstein reports four cases which he considers were primary tuberculosis infection and feels justified in this diagnosis. All of these cases, he says, were seen more than three years ago; 3 are still living, and careful physical examination fails to show any present tubercular affection. There are no evidences in the histories of these cases or in their clinical development, either of acquired or hereditary tuberculosis in the families of these patients. Of the 4 cases, 3 involved the mastoid cells extensively, and showed an unusually active and rapid invasion. All of the cases developed from a pre-existing otitis media suppurativa chronica, and appeared to him as direct infection by the bacillus tuberculosis. In the 3 cases where the mastoid operation was performed, the wounds healed by firm granulations, and all evidences of tuberculous trouble ceased with the removal of the local process. This is in direct contrast to the healing of wounds in patients where the systemic tubercular invasion is present. The data which have been furnished in the cases herein reported all point to definitely localized specific infection of the cavum tympanum and mastoid cells, with the characteristic development of a tuberculous process as it occurs in bone tissue, and with the definite demonstration of the bacillus tuberculosis in 1 case.

St. Louis Medical Review.

March 14.

37 Postmortem and Chemical Findings in Acute Arsenical Poisoning and Phenol Poisoning. R. B. H. Gradwohl.
38 Some Remarks on the Clinical Aspect and Diagnosis of Incipient Tuberculosis. Arch Dixon, Jr.

Cincinnati Lancet-Clinic.

March 14.

39 Paraffin Injections in Facial Deformity. John W. Murphy.
40 Surgery of Prostate, Pancreas, Diaphragm and Spleen. (Surgery of Pancreas.) E. Merrill Ricketts.

Medicine, Detroit.

February.

41 *Lateral Curvature of the Spine. James K. Young.
42 *Some Practical Thoughts on Pneumonia. J. M. Anders.
43 *Some Problems of Tuberculosis. Roland G. Curtin.
44 *An Examination into the Value of Certain Antiseptics Used for the Preservation of Antitoxic and Other Immune Serums. Joseph McFarland.
45 Problems in the Laboratory Study of Diphtheria. F. F. Westbrook.

41. **Spinal Curvature.**—The causes, mechanism and treatment of lateral curvature of the spine are described at length by Young, who treats it by developing the weak muscles by collective or individual exercise, slightly over-developing them; later uniform development of all the muscles, and the use of special movements to prevent relapse. He divides the condition into three degrees: If the curvature entirely disappears on self-suspension it is of the first degree; if it is somewhat affected, but not entirely corrected, it is of the second; and if not affected whatever it is of the third degree. In the latter cases, the prognosis, of course, is very much more unfavorable. The first degree may be cured, the second influenced by treatment, but the last is incurable.

42. **Pneumonia.**—The increase of pneumonia in recent years is noted by Anders, who gives statistics to show that it is a fact. He thinks it may be due to a great extent to certain degenerative tendencies of modern life, and mentions especially the enormous consumption of malt liquors, which has a bad effect in this particular way. As to its contagion he holds there is good reason to regard it as a fact, notwithstanding the denial by Aufrecht. Pneumonia due to the streptococcus has been common of late years, and he calls attention to the differences between that and the ordinary pneumococcic form. It may assume the type of so-called serous pneumonia, which is really a streptococcic process. There are cases of pneumonia that seem to answer clinically to the variety known as typhoid pneumonia, but he finds that many of these are of pneumococcic origin. The typhoid pneumonia and the asthenic type have become much more common of late years, and he attributes them to the causes first mentioned. Leucocytosis

has been attracting attention. He finds a mild form occurs in light cases, but not so commonly as in malignant types. The highest count usually occurs immediately before the crisis and falls remarkably afterward. Jaundice, when it occurs, he thinks, may be in exceptional instances due to an intense toxemia, but it is in nearly all cases an obstructive jaundice. The diagnosis of aberrant cases may be difficult. The treatment is unsatisfactory. We should use prophylactic measures, disinfection of sputum. We have nothing that will destroy the infecting organism, but we should promptly interfere when cardiac weakness or systemic exhaustion threatens. He has much confidence in oxygen by inhalation and also in normal saline solution; hydrotherapy in many cases meets the indications better than drugs.

43. **Tuberculosis.**—Curtin discusses the contagiousness of tuberculosis, which he thinks has been over-estimated; also the futility of legislation against it. He puts considerable stress on the heredity of the condition favoring an outbreak of the disease, and gives cases to show that pulmonary defects in parents before the birth of a child may leave their impression on the pulmonary tissues of the offspring.

44. **Antitoxin Preservatives.**—McFarland finds that formaldehyd is the only really effective antiseptic in antitoxin cultivation. Unless the pain it causes or the poisonous influence of phenol should be held to outweigh the advantages of trikresol, he would recommend that the use of the latter be abandoned.

International Medical Magazine, New York.

February.

46 *Etiology of Catarrh of the Nasopharynx. Charles W. Richardson.
47 *Do Nasal Diseases in Any Way Predispose to or Cause Pulmonary Disease? E. L. Shurly.
48 *Can Hypertrophic Rhinitis Be Cured by Other Than Surgical Measures? Jacob E. Schadle.
49 *Chronic Nasal Catarrh in Its Relation to Asthma. P. J. H. Farrell.
50 *Galvano-cautery in Hypertrophic Rhinitis. Carl Seller.
51 Etiology and Pathology of Catarrhal Conditions of the Nasopharynx. D. Braden Kyle.
52 The Influence of Catarrhal Diseases of the Nose and Throat in Producing Speech Defects in Children. G. Hudson Makuen.
53 Atrophic Rhinitis. J. A. Stucky.

46. **Nasopharyngeal Catarrh.**—Atmospheric changes as a cause of catarrh of the respiratory tract are first noted by Richardson, who says the occurrence of acute colds in rapid succession sets up a true catarrhal condition, while the modern methods of house-heating, imperfect ventilation, the excessive use of tobacco, alcohol and so on, all have their influence on the production of the disease. Improper clothing is also another important cause. He notices the digestive disorders which may follow it. The constitutional disorders which may predispose, such as lithemia, rheumatism, neurasthenia, tuberculosis, and so on, the local changes in the nasal chambers such as septal deformities, also causing alterations of the mucosa, which are followed by similar changes in the pharynx, are noted.

47. **Nasal and Pulmonary Disease.**—Shurly concludes from a study of chronic nasal affections that it is not feasible to regard chronic nasal or nasopharyngeal disease as especially concerned in producing chronic pulmonary disease. As regards acute pulmonary disease, there are certainly conditions which invite attacks by continuity, producing bronchitis, pneumonia and so on, and making the subjects more liable to other diseases.

48. **Hypertrophic Rhinitis.**—In answer to the question in the title of his article, Schadle gives a definite "No." He discusses the causes of hypertrophic rhinitis, the methods of treatment, the acid caustic method, the use of the electro-cautery, of which he is an advocate and the use of the snare for papillary hypertrophy.

49. **Nasal Catarrh and Asthma.**—Eighty per cent. of Farrell's asthmatics were cured by removal of the abnormal condition of the nasopharynx, classed under the general head of chronic nasal catarrh. Of the remaining 20 per cent. one-half were benefited. He has never failed to cut short an acute attack, no matter how severe, with a hypodermic injection of codein or morphin. Atropin 1/100 hypodermically or 2 per cent. cocain solution applied to the nasal chambers he has found will give equally prompt relief. He says in the search for the underlying cause of the bronchial spasm, eliminate cardiac trouble, renal disease, gastric and intestinal disturbances, chronic bronchitis, rheumatism, gout and all dyscrasias of the blood, and then examine the nose and throat. Whatever may be the pathology of asthma, the exciting cause is frequently found in the nasal chambers and the greatest number of cures results from removal of such causes.

50. **Hypertrophic Rhinitis.**—The galvanocautery in this condition has been advocated by Seiler, who describes the technic. He has also found it exceedingly valuable in hay fever if the following simple precautions are observed: Not to attempt any cauterization until the paroxysm is completely passed and all inflammation has subsided, as in the winter months; to cauterize only the small areas of irritability which can be brought into view by the touch of the tip end of a probe, but without cocain, as this drug prevents the erection of the turbinate tissue and interferes with the sensitive spots becoming visible; never use the flat surface of the knife and never cauterize more than three or four of the sensitive spots at one sitting and then in one anterior nasal cavity only. He would not apply it in the posterior pharynx nor during the stage of acute inflammation.

Archives of Ophthalmology, New Rochelle, N. Y.

March.

54 *A Case of Primary Epibulbar Sarcoma, with Secondary Growths in Limbus and Sclera, and Invasion of the Chorold, Ciliary Body, and Iris. Frederick H. Verhoeff and Robert G. Loring.
55 The Accuracy Requisite in Vision-Testing. Kenneth Scott.
56 The Ophthalmoscopic Appearance of the Ora Serrata and the Ciliary Processes. M. Reimar.
57 On Indirect Ruptures of the Iris. Georg Levinsohn.
58 On the Anatomy of the Ganglion Cells of the Retina. G. Abelsdorff.
59 *A Contribution to the Differential Diagnosis between Glioma of the Retina and Pseudoglioma. Julius Fejér.
60 On Paralysis of Latero-version. Otto Wernicke.

54. **Primary Epibulbar Sarcoma.**—Verhoeff and Loring report a case of interest as showing the malignancy of this condition, which they discuss at length. Their conclusions are given in substance as follows: Epibulbar sarcoma differs from the usual form in malignancy only so far as it is isolated on the highly resistent cornea and sclera, and comes to operation relatively small. Notwithstanding its malignancy, it rarely penetrates the eye. Recurrences almost invariably, sooner or later appear after abscision and general metastases are not infrequent. Immediate enucleation should be advised in all cases after microscopic diagnosis, but the patient should be consulted as to operation after having been fully informed as to the unfavorable prognosis. They give a brief résumé of the cases reported and an extensive bibliography.

59. **Glioma and Pseudoglioma of the Retina.**—Fejer reports a case and discusses the diagnosis and symptoms of the condition. Errors of diagnosis can not well be avoided.

Louisville Monthly Journal of Medicine and Surgery.

March.

61 Pneumonia, with Some Unique Complications. B. A. Allan.
62 *The Surgical Value of the Stomach Tube and the Rectal Tube. Horace J. Whitacre.
63 The Ultimate Results of Treatment in Uretero-Vaginal Catarrh of Virgins. John A. Hale.
64 Simple Mania. Cassius D. Mansfield.
65 The Treatment of the Third Stage of Labor. Turner Anderson.

62. **The Stomach and Rectal Tube.**—The surgical uses of these instruments are enumerated by Whitacre, who deals particularly with their therapeutic uses. The stomach tube, for instance, is of special value in intestinal obstruction, in appendicitis and in emptying an overfull stomach. It is of special value, also in cases of cancer of the stomach. It ought also to be employed more where operation has to be performed without preparation on a full stomach, and he thinks the persistent vomiting after anesthesia can often be relieved by washing the stomach out before the patient has left the operating table and while still under the influence of the anesthetic. The uses of the rectal tube are numerous. He mentions espe-

cially the value of high enemata in the treatment of disease where it is not advisable to give nourishment by the mouth, as in appendicitis or other peritoneal affections, also for moving the bowels after abdominal operations. Rectal feeding is also described. We should bear in mind that the rectum does not digest, therefore proper foods should be used and injected at the proper temperature, about 100 F., in the upper part of the rectum. Not more than four to six ounces should be given at one time. The interval between feedings should never be less than four hours, and preferably five or six. The rectum should be washed with sterile salt solution at least one hour before each feeding. The catheter and syringe should be kept in an aseptic condition and the bowels moved daily by a simple soapsuds enema.

Proceedings of the Philadelphia County Medical Society.

February 28.

66 Nephropexy in a Case of Chronic Nephritis. J. Norman Henry.
67 *An Inquiry into the Value of the Irrigation Method as a Means of Aborting and Treating Acute Specific Urethritis. Orville Horwitz.
68 *Trunecek's Serum and Its Value in Disturbed Cerebral Functions Caused by Circulatory Changes, with Reports of Twelve Cases. Alfred Gordon.
69 Report of a Case Illustrating Importance of Operation in Certain Cases of Facial Paralysis. Levi J. Hammond.
70 The Treatment of Carcinoma of the Rectum by Mercuric Cataphoresis. G. Betton Massey.

67. **Gonorrhea.**—The defects of the irrigation method are reviewed at length by Horwitz, who concludes that it will not abort specific urethritis, though it will hasten the terminal stage which is prolonged and difficult to cure. Chronic urethritis and involvement of the deep organs are common sequences. To effect a cure in the later stages of the disease irrigation must be discontinued and other methods employed. It should not be employed in the acute stage of specific urethritis nor should irrigations in the deep urethra by hydrostatic pressure be used in the majority of cases of acute gonorrhea as it is conducive to the development of complications.

68. **Trunecek's Serum.**—This serum, as modified by Léopold-Lévi, has been used by Gordon in a number of cases of arteriosclerosis with considerable benefit in some of them. Its combination in this modification is sodium chlorid, 10 gm.; sodium sulphate, 1 gm.; sodium carbonate, 0.40 gm.; sodium phosphate, 0.30 gm.; calcium phosphate and magnesium phosphate, of each, 0.75 gm. The mixture makes thirteen powders. Each powder corresponds to 15 c.c. of the fluid serum, or 150 c.c. of blood serum. The method employed by Gordon was the internal treatment. He concludes that this combination may be a valuable remedy in some cases of disturbed cerebral function caused by circulatory changes, and this not only by hypodermic and intravenous administration, but also internally. When the iodids, nitrites and other means used in such cases are without avail, Trunecek's serum should be given a trial. Sometimes a combination of both may be necessary. Several days, at least a week, must elapse before the desirable results can be expected. There are cases, however, in which the remedy is absolutely useless.

California State Journal of Medicine, San Francisco.

February.

71 *Symposium on Hydrotherapy—Hydrotherapy. George A. Hare.
72 *Hydrotherapy in Typhoid Fever. Frank L. Adams.
73 *Hydrotherapy in the Treatment of Pneumonia. A. J. Sanderson.
74 *Spinal Anesthesia with Tropa-cocain in Genito-Urinary Surgery. M. Krotoszyner.
75 On Ptomaine Poisoning. E. O. Jellinek.
76 Supplemental Report on Hygiene. H. J. Crompton.

71.—See abstract in THE JOURNAL, xxxviii, p. 1265.

72. **Hydrotherapy in Typhoid.**—Adams' article treats of the advantages of hydrotherapy in typhoid fever, giving statistics showing the decrease of mortality under the improved methods in this disease, from between 40 and 50 per cent. down to almost nothing under skilled care. The technic of the Brand method is described and the objections answered. The beneficial effects of the bath are enumerated at length, also the conditions which contraindicate and do not contraindicate it. Among the former he includes severe hemorrhage, extreme cardiac weakness, peritonitis, great reduction of strength in the third week of the fever, perforation, severe pneumonia or pleurisy and extreme nervousness on the part of the patient in some few cases. For the aged and enfeebled it would also require some modifications. In conclusion, he gives a summary of answers of correspondents in California as to their methods, showing the large percentage in favor of this method of treatment.

73. **Hydrotherapy in Pneumonia.**—Sanderson advises the use of hydrotherapy in pneumonia and describes the method of applying it, the full body pack, leg pack, cold compress, fomentations, cold friction, bowel irrigation, etc.

74. **Tropa-Cocain Anesthesia.**—Krotoszyner has used tropacocain for spinal anesthesia in some 120 cases and highly recommends it. He has never observed the excruciating headache sometimes following cocain injections, and only in a very few cases any disagreeable symptoms whatever. The only danger with this method of anesthesia is in sepsis to the spinal canal and, therefore, he does not use it in private houses. Thus far he has not had a mishap and thinks it no more dangerous than any other form of anesthesia.

Southern Practitioner, Nashville, Tenn.

March.

77 *Treatment of Malaria. D. B. Blake.
78 *Remarks on Surgery of the Prostate Gland. James W. Handley.

77. **Malaria.**—The paper of Blake covers the subject very completely, adopting in full the mosquito theory and insisting on prophylaxis as far as possible by extirpation of the mosquito. He thinks probably the best larvicides are the aniline dyes recommended by Celli, though he has not yet been able to obtain them. Fish in waters are very like dragon flies in the air and are only an adjunct to other methods of destruction of the mosquito. The most important measure of all is protection of houses by wire netting. The location and construction of the dwelling is a matter of some importance. The anopheles do not fly high or far, and it is well to build on elevations, as far as possible from breeding places, and sleep on the second and third floors, having the windows well screened. While quinin is a specific, its use requires some skill and the best time to administer it is at such periods as will ensure the presence of the remedy in the blood in sufficient quantities when it is most flooded by the parasites. The end of the febrile period seems to be the most favorable time. When symptoms are urgent, however, we can not wait for this, and the drug should be given as soon as possible and in such quantities as may ensure its absorption, with other remedies to relieve glandular torpor, and sometimes hypodermics of morphin, if not contraindicated, at the onset of the cold stage may be of use. In some cases with gastric irritability, administration of medicines must be per rectum. Next to the cinchona preparations, arsenic is the most reliable drug. He advocates popular education on the subject of malaria and its prevention as one of the valuable methods of aiding sanitation.

78. **Prostatic Surgery.**—Handley favors Wishard's method of combined perineal section and Bottini cauterization.

The Laryngoscope, St. Louis.

February.

79 *Congenital Cleft of the Palate—A Further Report upon the Operative Technic and Its Results. James F. McKernon.
80 *The Falsetto Voice; Origin and Respiratory Treatment; Dental Irregularities. Marcel Natier.
81 *Excision of the Epiglottis for Lupus. Talbot R. Chambers.
82 Perichondritis of the Larynx. Marshall R. Ward.
83 Some Critical and Desultory Remarks on Recent Laryngological and Rhinological Literature. Jonathan Wright.

79. **Cleft Palate.**—McKernon describes at length his technic of operation and speaks strongly in favor of tracheotomy as an adjunct. The patient can thus be treated as if the operation were anywhere else in the body, the patient breathing freely through the tracheal tube. The length of time required is reduced fully one-half, and the danger of getting fluid into the trachea, etc., is very much lessened. The operation generally seems successful.

80. **The Falsetto Voice.**—From the study of a case observed which is illustrated by tracings, Natier finds that the falsetto voice is caused by respiratory troubles, which can be corrected

by respiratory gymnastics as the most efficient and rapid method of treatment.

87. **Excision of Epiglottis.**—Chambers reports a case, the second on record at the time of his operation, which was done for a condition which seems to have been lupus, though another diagnosis had also been made.

New Yorker Medicinische Monatschrift.

January.

84 *Die Grenzen zwischen vaginaler und abdominaler Coellotomie. H. J. Boldt.
85 *Erfahrungen mit perinealer Prostatectomie. F. Kammerer.
86 Xanthoma tuberosum diabeticorum. Edward Pisko.

84. **Vaginal and Abdominal Celiotomy.**—Boldt advises the vaginal operation in a large number of conditions. Suppurative salpingitis, where the pus sacs are low in the pelvis, he would treat by opening through the vagina and drainage, a method which he has employed in some thirty-seven cases, producing nine symptomatic cures, fifteen improvements and only five had to be radically operated on later. He would also use it for ovarian tumors not larger than a man's head, which can be reached through the Douglas cul-de-sac, in degenerative ovaries which produce uncomfortable symptoms, in abscesses of the ovaries and all suppurations which are operable through the vagina. Uterine myomas should only be attacked when they produce uncomfortable symptoms. Submucous myomas amounting to 10 cm. in diameter can be attacked from below by slitting the anterior uterine wall. Small subperitoneal myomas rarely cause trouble. If the whole uterus is to be removed the abdominal method is to be preferred, since, by this method, one can leave intact the adnexa with a part of the endometrium, as recommended by Zweifel. Nervous phenomena and following hysteria are not so likely to occur. He considers, for operations on the uterus for displacements and retroflexions, that the Alexander is the ideal operation. He would close the wound by the Bassini hernia method in case of no suppuration. In mobile retroversions he would not advise opening the abdominal cavity, but the condition is different in fixed retroflexions. Vaginal celiotomy in extrauterine pregnancy is limited to those cases in which the diagnosis is made before rupture and, secondly, to those where hematocele has already formed and expectant treatment is contraindicated. In cancer of the uterus abdominal extirpation has had many supporters. Whether statistics will favor their views time alone will tell. He is at present of the opinion that the vaginal radical operation, with the aid of the galvanocautery, may give as good results as abdominal operations.

85. **Prostatic Hypertrophy.**—Kammerer favors the perineal method in this condition. It radically removes the trouble and prevents relapses. Its mortality is not greater than after the galvanocaustic method.

Memphis Medical Monthly.

February.

87 The Nature and Treatment of the Dyspepsia in Consumptives. Paul Paquin.
88 *The Treatment of Acute and Chronic Dysentery. M. Goltman.
89 Kidney Complications in Estivo-autumnal Fever. Ira B. Bartle.
90 A Case of Smallpox, with Sequelæ. W. T. Braun.

88. **Acute and Chronic Dysentery.**—The conclusions warranted by Goltman's experience are given by him as follows:

1. The treatment of dysentery, acute or chronic, by topical application is most rational. 2. Topical applications are useless unless large volumes of fluid are used to distend the bowel. 3. Topical applications, as usually made, are very painful in all cases, particularly in those that are acute. 4. Topical applications, to be thorough and far-reaching, are unbearable to the patient, on account of the extreme pain they cause. 5. Anal divulsion is a prime factor in facilitating the work of flushing the colon. Resistance to the escape of fluid is removed, and it markedly relieves the tenesmus. 6. Anal divulsion, cauterization of ulcers through the proctoscope, passage of a tube high up into the sigmoid through this instrument and thorough distension and flushing of the gut are absolutely impossible without the aid of anesthesia. 7. Anesthesia rather relieved than produced shock in my cases. These patients seemed to take as kindly to chloroform as women in childbirth. 8. In my judgment, one is more likely to overdistend and perforate the gut without anesthesia than with it.

Medical Review of Reviews, New York.

February 25.

91 *Food Preservatives: Their Use and Abuse. Willis G. Tucker.
91½ A Case of Exhibitionism. W. L. Robins.

91. **Food Preservatives.**—Tucker reviews the various methods used for preserving foods, and holds that borax, which has long been used, is not particularly deleterious in the quantities in which it may be ingested in food thus preserved. Still, he thinks it will be advisable to prohibit its use in milk, but not in certain other food products, such as those where small amounts are required, as in butter, cheese and cream, and in dusting of ham or bacon. Salicylic acid has been largely used and, if limited to such things as catsup, which is used in small quantities at a time, it is not likely to do harm, but if used in beer or drinks, of which large quantities may be taken, it is very objectionable. Benzoic acid is considered to be somewhat less objectionable, but its indiscriminate use should not be sanctioned. If, for example, it were added to cider in the maximum quantity recommended, a quart might contain as much as 12 grains, which is certainly too much. The sulphites and bi-sulphites should not be permitted in food. Formaldehyd is principally used in milk, and this ought never to be permitted. It directly interferes with digestion. Beta-naphthol is another preservative which should be viewed with disfavor. Saccharin is, perhaps, somewhat better. He is inclined to doubt the wisdom of absolutely prohibiting its employment in the present state of our knowledge. The fluorids are supposed to be comparatively rarely used in this country, but he thinks, perhaps, their use is not so uncommon, and the subject needs further investigation. Pyroligneous acid is used as a substitute for smoking meats and, while we are not perhaps justified in saying that foods thus preserved are injurious, they certainly should not be called "smoked" or sold as such. Abrastol or asaprol, the calcium salt of beta-naphthol-sulphonic acid, which possesses marked antiseptic properties, has been more or less used as a preservative, but would seem to belong to a class of compounds which should not be permitted. He thinks, however, that too much extreme legislation should be discouraged. The specific prohibition of certain articles not universally conceded to be harmful is unwise, especially as our present laws specifically forbid the addition to foods of any poisonous substances or any that may render such article of food injurious to the health of the person consuming it, as is now the case in many of the states. He thinks, however, that it would be a good law that would require in the case of every food article, in the preparation of which preservatives other than certain articles, such as sugar, salt, etc., are employed, the fact of such employment and the quantity used, plainly stated on the package. Massachusetts has recently passed a law of this description.

The Post-Graduate, New York.

March.

92 *Aseptic Preparation for Surgical Work in Country Practice. R. T. Morris.
93 Methods and Means for Treating Gonorrheal Urethritis in the Male. James Pedersen.
94 Notes from the Clinics: Epistaxis. Bryan D. Sheedy.

92. **Aseptic Preparations.**—The methods of country surgical practice are mentioned by Morris, who tells how to provide for, impromptu, some of the necessities, such as absorbent cotton, sterilization of vessels and instruments. He advises avoidance of absorbent dressings directly to the wound. As to disinfection of the hands, he considers it can be done fairly well by using a 2000 bichlorid of mercury solution for two minutes and, still better, by scrubbing the hands in a mixture of carbonate of soda, chlorid of lime and water, in which the nascent chlorin gas penetrates the interstices about the nails and hair roots. This gives him the best results in hand sterilization. He is experimenting with a method which, he thinks, will be of value, using a germicidal depilatory for removing the hairs, etc., on the surface about to be operated on. He deprecates the disuse of anesthetics in certain lesser operations, dressing of burns, etc., in country practice and in the smaller towns, and believes that we can not do as good work unless we anesthetize in such cases.

Virginia Medical Semi-Monthly, Richmond.

February 27.

95 1. Cirsoid Aneurism of Scalp, Treated by Ligation of Both Common Carotid Arteries. 2. Chronic Posterior Urethritis, Treated by External Perineal Urethrotomy and Drainage. 3. Lupus, Treated by the X-Ray. Stuart McGuire

96 Surgery of Penetrating Wounds of Lungs and Heart (Experimental). Benj. Merrill Ricketts.
97 The Mechanics of Mercury in Syphilis. Thomas W. Murrell.
98 Hystero-asthma; Report of an Illustrative Case, Cured by Tincture of Stramonium. John Randolph.
99 Report of a Case of Rattlesnake Bite. Charles H. Grandy.
100 The Causes and Complications of Gout. John N. Upshur.
101 Acetozone in the Treatment of Gonorrhea in the Female. C. E. Dowling.

Medical Fortnightly, St. Louis.

March 10.

102 Some Cases of Functional Nervous Disease. Charles G. Chaddock.
103 Some Points in the Treatment of Functional Disorders in the Sexual Organs of the Male. Frederick R. Sturgis.
104 Surgery of the Heart—Illustrated with 50 Stereopticon Slides. Benjamin M. Ricketts.
105 Diseases of the Lungs and Pleura—Pulmonary Atelectasis. Albert Abrams.

Journal of Medical Research, Boston.

February.

106 Products of Prolonged Bacterial Action on Proteins. A. E. Austin.
107 Ring Bodies (Nuclear Remnants?) in Anemic Blood. Richard C. Cabot.
108 Experiments Relating to the Question of Fixation of Strychnin in Animal Tissues. S. J. Meltzer and G. Langmann.
109 Note upon Erythragglutinins in a Cyst Fluid. Walter R. Brinckerhoff and Elmer E. Southard.
110 *The Influence of Nephrectomy upon Absorption—An Experimental Study from the Rockefeller Institute for Medical Research. S. J. Meltzer and William Salant.
111 On Fatty Degeneration. Alonzo E. Taylor.
112 Experimental Fat Necrosis. H. Gideon Wells.

110.—This article appeared elsewhere. See THE JOURNAL of February 7, ¶6, p. 400.

Annals of Gynecology and Pediatry, Boston.

March.

113 Good Vision an Important Factor in the Educational Process. S. D. Risley.
114 Children in Cities. Rosa Engelmann.
115 *Albugineotomy in Chronic Orchitis, with Report of Case. Emanuel J. Senn.

115.—Ibid January 24, ¶89, p. 272.

Buffalo Medical Journal.

March.

116 Henry de Mondeville, the Man and His Writings. (Continued.) Charles Greene Cumston.
117 Medical Expert Testimony. Carey D. Davie.
118 Some of the Causes Leading to and Producing Suppuration. Francis W. McGuire.

Indiana Medical Journal, Indianapolis.

March.

119 The Eye and Ear Complications of Measles. L. D. Brose.
120 A Note on the Treatment of the Chancre. Isadore Dyer.

Providence Medical Journal.

March.

121 The Lorenz Method. Frank E. Peckham.
122 The Blood in Malarial Fevers. Henry A. Cooke.
123 The Control of Hemorrhage by Gelatine, with a Report of Three Cases. W. Louis Chapman.
124 Some Remarks on the Present Day Treatment of Pulmonary Tuberculosis. Jay Perkins.
125 First Conviction for Abortion in the State of Rhode Island. Douglas P. A. Jacoby.
126 Remarks on Cremation. William J. Burge.

Maryland Medical Journal, Baltimore.

March.

127 A Case of Aneurism of the Aorta of Twenty-five Years' Duration. Jose L. Hirsh and Morris C. Robins.
128 Some Renal and Ureteral Cases—Calculus and Tuberculosis. Hugh H. Young.

Journal of Advanced Therapeutics, New York.

March.

129 Electrolysis and Its Therapeutical Application. Robert Newman.
130 The Diffusion of Iodin by the Electric Current. M. F. Wheatland.
131 Results and Technic in Treating Epithelioma with X-Rays. Emil H. Grubbe.
132 The Therapeutic Uses of the Brush-Discharge, and Induced High-Frequency Discharges of Vacuum Electrodes and Geissler Tubes. William B. Snow.

Woman's Medical Journal, Toledo, Ohio.

February.

133. Neurasthenia. Margaret A. Freece.
134 The Nurse of the Future. Helen MacMurchy.
135 Impressions of Vienna. Anna E. Blount.

Transactions of the Chicago Pathological Society.

January 12.

136 Bacteriologic Study of the Blood in Thirty Cases of Clinical Typhoid Fever, Two of Which Proved to Be Paratyphoid and One Doubtful. E. H. Ruediger.

Canadian Journal of Medicine and Surgery, Toronto.

March.

137 The Sanatorium—Its Importance in the Crusade Against Tuberculosis. J. H. Elliott.
138 A Plea for the Open Method of Treating Fractures of the Patella. F. N. G. Starr.
139 Address, Provincial Board of Health of Ontario. Harry E. Vaux.
140 Report of a Fatal Case of Secondary Hemorrhage, Four Days Following the Removal of Adenoids. Perry G. Goldsmith.

Toledo Medical and Surgical Reporter.

March.

141 The Cure of Cancerous, Intractable and Destructive Diseases by the X-Ray. John A. Wright.
142 Vaccination. Park L. Myers.
143 Version. J. D. Salvail.
144 Fundus Lesions and Their Relation to General Diseases. George F. Suker.

Memphis Medical Monthly.

March.

145 An Essay on Blindness. E. C. Ellett.
146 Some Further Observations in Diphtheria and Its Serum Treatment. O. S. McCown.
147 Gunshot Wounds, with Reports of Cases. H. S. Wolff.
148 Some Remarks on Appendicitis, with Description of a New Suture. J. P. Runyan.
149 Prosthetic Surgery of the Face. J. E. Johnson.
150 Report of a Case of Puerperal Septicemia Treated by Intravenous Injection of a Solution of Formalin. Frank D. Smythe.
151 A Suggestion in the Therapeutics of Hemoglobinuria. H. C. Stinson.

Medical Times and Register, Philadelphia.

February.

152 Moist Antiseptic Dressing in Minor and Semi-Major Surgery. Lucien Lofton.
153 Cephalalgia and Its Treatment. Henry B. Hollen.

Physician and Surgeon, Detroit and Ann Arbor, Mich

December, 1902.

154 William Beaumont as a Scientist. John Nelson Goltra.
155 William Beaumont and His Work. Victor C. Vaughan.

Mobile Medical and Surgical Journal.

February.

156 Diagnosis and Treatment of Gallstones. W. E. B. Davis.
157 Causes and Treatment of Cystitis. M. L. Davie, Jr.
158 Antipyretics. Henry Green.
159 Alcoholism and Crime. P. M. Lightfoot.
160 Recent Clinical Notes (Malarial Hematuria, Vomiting in Pregnancy, Etc.). F. A. Webb.

Merck's Archives, New York.

March.

161 Neurasthenia in the Male. (To be concluded.) H. Edwin Lewis.
162 Therapeutic Value of Turpentine. J. Dabney Palmer.
163 An Index of Diseases, Alphabetically Arranged, with Their Modern Treatment. G. Bjorkman.

International Journal of Surgery, New York.

March.

164 A Contribution to the Study of Quinsy with Complications, with Seven Cases Illustrating Operation and Treatment. Frank E. Miller.
165 Nose and Throat Work for the General Practitioner—Tracheotomy. (Continued.) George L. Richards.
166 Briefs on Genito-Urinary Diseases; Note on the Incubation Period of Gonorrhea in Women. G. Frank Lydston.
167 The Surgical Assistant. (Continued.) Walter M. Brickner.
168 The Technics of Amputations. Robert H. Cowan.
169 A Contribution to the Surgery of Uretero-vesico-vaginal Fistula. R. C. Hill.

Medical Times, New York.

March.

170 Generation and the Law of Sex. Wm. More Decker.
171 Points of Interest to the General Practitioner. J. Lee Fowler.
172 Modern Antisepsis. Wm. R. Brubaker.
173 The Urine and Kidneys in Health and Disease. A. N. Ulrich.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Archives Gen. de Medecine, Paris.

1 (December.) Inactivité de l'hyposulfite de soude comme neutralisant de l'abrine et du phénol. E. Boix and J. Noé.
2 Les données (data) expérimentales et cliniques de la mesure de la pression sanguine (determination of blood pressure). N. Vaschide and J. M. Lahy.
3 Le Haut-Tonkin. Essai de climatologie médicale. H. Girard.
4 (LXXX, 1.) *Evolution de la tuberculose produite chez les cobayes (induced in guinea-pigs) par le bacille phthisiogène ou spermigène contenu dans les sputa de personnes atteintes de tuberculose pulmonaire, et genre d'altérations tuberculeuses qui peuvent être efficacement combattues par le Sérum Antiphymique provenant des animaux immunisés avec les toxines du dit bacille. J. Ferran (Barcelona).
5 Le magnétisme en images. H. Meigs.
6 Le lavage de l'estomac (of stomach). G. Linossier. Critical Review.

7 L'aspirine. J. Noé.
8 Les pleurésies rheumatismales. L. Rénon.
9 (No. 2.) L. Gosselin, 1815-1887. P. Tillaux.
10 Les médicaments actuels dans le diabète sucré. M. Boigey.
11 (No. 3.) Les complications nerveuses des fractures de l'extremité inferieure de l'humerus chez les enfants (in children). M. Savariaud. (Commenced in No. 2.)
12 Les délires de rêve (dream). Vigouroux.
13 Les solutions de caféine. E. Desesquelle.
14 (No. 4.) La graisse (fat) dans le testicule. M. Loeper and C. Esmonet.
15 L'armée centre morbide. G. Depautaine.
16 Le phlegmon ligneux du cou (woody phlegmon of neck). G. Marion. Two cases.
17 L'abcès rétro-pharyngien. J. Rénault.
18 Acétopyrine. J. Noé.
19 (No. 5.) Paralysie ascendante de Landry, algue, mortelle, à la suite d'une blenorrhagie. A. Ricaldoni and A. Lamas.
20 L'appendicite tuberculeuse. J. Bougle.
21 Hermophényl. J. Noé.
22 (No. 6.) Etude clinique des paralysies diphthériques. C. Aubertin.
23 La réaction de débilité neuro-musculaire. Klippel.
24 Médication hemostatique. J. Noé. Critical Review.
25 (No. 7.) •De la résection du genou sans ouverture (resection of knee without opening) de l'articulation. G. Marion.
26 Névrites post-pneumoniques. L. Rénon and E. Géraudel.
27 Incompatibilités médicamenteuses. J. Noé.

4. **Ferran's Phthisiogenic Bacillus and Serum Treatment.**—Ferran announced in 1901 that the sputa of tuberculous subjects always contains a bacillus differing from Koch's but able to induce the lesions of tuberculosis in guinea-pigs. He now gives illustrations of the lesions caused by it in his experimental research and argues to prove that the bacillus in question is the Koch bacillus in the state of a saprophyte. Under the influence of the bacteriolysins and agglutinins produced in the organism in which it is living, it undergoes modifications which transform it into the typical Koch bacillus. The tubercles are due to accumulation of leucocytes, dying under the influence of the bacilli, their necrosed bodies forming the mounds known as tubercles. The tubercles may form before the bacilli have become transformed. In the pretubercular stage it is possible to render the organism immune by a serum obtained from animals immunized with the toxins of this saprophyte or phthisiogenic bacillus. After these bacilli have become transformed into actual Koch bacilli, this serum is useless. Tuffier recently succeeded in rendering guinea-pigs tuberculous by inoculating them with pus or tissues absolutely free from Koch bacilli, taken from Dr. Paul Garnault, who, as our readers will remember, inoculated himself with tissues from a cow in an advanced stage of tuberculosis.

10. **Modern Therapeutics of Diabetes Mellitus.**—Boigey concludes his review of this subject by calling attention to the results obtained by Strebel from local application of arc electric light reflected on the liver region. The skin becomes red and perspires, and after a few days the sugar rapidly disappears from the urine. The number of cases thus treated is not yet conclusive, but encourages further trials. Moubineff uses a current of 25 amperes and 60 volts for the purpose. Boigey regards brewers' yeast as the heroic remedy for diabetes mellitus. The fact that yeast contains a variable proportion of different saccharomyces explains the lack of a constancy in its effects. But they are truly remarkable when a good yeast of a stable composition is used. It insures antisepsis of the intestines and prevents the formation of an excess of sugar. The cells of the saccharomyces have themselves energetic phagocytic properties and may thus destroy a certain number of the intestinal bacteria. In addition, their secreted products are capable of neutralizing the toxins generated by the food, a supplementary indirect mode of intestinal antisepsis. It transforms starchy foods into alcohol. Its ingestion in large amounts in some cases has been known to induce a certain degree of alcoholic intoxication. The invertine or sucrase which it contains transforms cane sugar into glucose, then the zymase or alcoholic diastase intervenes and transforms the glucose into alcohol.

25. **Resection of Knee Without Opening the Joint.**—The femur is cut with a right-angled point and the tibia with a v-shaped incision to correspond. The upper cul-de-sac of the synovial membrane is dissected in front and detached from the femur behind down to the beginning of the section of the bone. The joint is then detached at the rear, from the front, loosening all its attachments to the other organs in the popliteal space, down to the beginning of the v-shaped section of the tibia, the incision carried outward through the ligamentum patellæ. By this means the joint is removed whole, with no opportunity for the escape of tuberculous infectious matter. Marion gives numerous illustrations of the various steps of the procedure, which he has performed 9 times. In one case the wound was reopened to arrest hemorrhage later, and suppuration followed, requiring amputation of the limb. In a second case the tuberculous lesions in the cul-de-sac were so extensive that it had to be opened. The result was an interminable fistula and death from generalized tuberculosis. This failure is a brilliant commentary on the necessity of refraining from opening a tuberculous focus in resecting the knee. All the other patients recovered in the most satisfactory manner and the operation can be considered to have fully established its usefulness. Consolidation occurred in two to six months. One of the patients insisted on taking off his cast several times a week, and he still has a slight mobility of the parts, but not sufficient to interfere with his work as a farm hand.

Bulletin de l'Academie de Medecine, Paris.

28 (February 3 and 10.) •L'alcool-poison et l'alcoolisme. J. V. Laborde and others.
29 Discussion of Measures Rendered Necessary by New Law for Compulsory Vaccination.
30 •De l'analgésie localisée par la cocaine. Incision du panaris. P. Reclus.
31 (February 17.) •Nouveau procédé de radiographies. Radiguet and Guichard.
32 •Un cas d'immunité contre le venin de vipère. Boinet.
33 Continued Discussion of Liqueur and Essence Question.

28. **The Alcohol Question.**—Duclaux of the Paris Institut Pasteur published in the last *Annales* an account of the researches of Atwater and others on the food value of alcohol, accepting their conclusions and remarking that we must henceforth treat alcohol with more respect. Laborde and numbers of others denounce Duclaux for thus arraying himself against those who are seeking to educate the public in regard to the dangers of the abuse of alcohol.

30. **Local Analgesia with Cocain. Incision of a Panaris.**—Reclus has performed more than 7,000 operations under cocain and has never had a death which could possibly be attributed to it. Since he has established the three principal rules for its application he has not witnessed any by-effects from its use. These rules are: 1, never to use a stronger concentration than .5 or 1 per cent.; 2, always have the patient recline during its administration and not get up for half an hour afterward, and 3, always to eat and drink something before arising. It is to the disregard of these principles that dentists owe their misadventures with cocain. Reclus asserts that he has carefully sifted the literature and has been unable to find a single published case of a mishap in which these rules had been followed, or even approximated. In incising a panaris he injects the cocain at the base of the finger in the subcutaneous tissue, inserting the needle at four points and injecting the fluid to form a complete ring around the base, using 6 to 7 cg. in all. The finger is then absolutely insensible and the surgeon can proceed to the most thorough intervention on the panaris. After evacuation and curetting he lays the finger in hot hydrogen dioxid and concludes by dressing with an analgesic salve. The lesion heals completely in a few days. He operates under local analgesia with cocain in more than two-thirds of his current surgery, on hernia, hydrocele, varicocele, in dilation of anus, excision of hemorrhoids, artificial anus, gastrostomy, appendicectomy, ablation of subcutaneous tumors, etc. In the discussion that followed his address, Galippe, Laborde, Lucas-Championnière and Duplay stated that they considered cocain too dangerous for current use and had abandoned it almost completely.

31. **New Process of Radiography.**—The modification suggested is to render the soft parts visible in the radiogram. This is accomplished by outlining or painting one side of the parts desired with a paint made by mixing with oil, subnitrate of bismuth or red copper in powdered form to the consistency of ordinary paint and applying it with a paint brush.

32. **Immunity to Viper Bites.**—Boinet had occasion to examine postmortem a man whose occupation had been the ex-

termination of vipers or procuring them alive for Calmette, who paid ten cents apiece for them to use in the production of his antivenom. The man's father had followed the same occupation. Both acquired immunity to viper bites in time, but the son showed no signs of inherited immunity. It increased in the son with the frequency of the bites and diminished as the intervals between them became longer. He found cauterization with a concentrated solution of chlorid of gold and phenic acid extremely effective for local treatment of the bites. His death did not seem to be attributable to the vipers, but was the result of diarrhea from exposure, etc.

Bulletin Gen. de Therapeutique, Paris.

34 (LXXII, 1.) *Sulphur Baths in Syphilis. Dresch.—Medication thermale dans la syphilis.
35 Discussion: Fixation de la ration alimentaire. Barbier and others.
36 (No. 2.) *Application thérapeutique des decouvertes de Pawlow. Hallion and Carrion.
37 *Traitement abortif des furoncles par une solution concentrée d'iode dans l'acetone. P. Gallois and Courcoux.
38 *Nouveau mode d'administration de l'huile de chaulmoogra. H. Danlos.
39 (No. 3.) La question des doses de mercure at du traitement du tabes et de la paralysie générale. Leredde.
40 Resultats fournis par l'emploi de l'arrhénal dans la peste, le nagana, le mal de cadera, la fièvre de Texas et la malaria. A. Gautier.
41 Le traitement des néphrites. Muselier. (Commenced in No. 2.)
42 (No. 6.) *Note sur un nouvel emploi therapeutique de l'hyposulfite de sodium. Claret.
43 *Observations d'hémorragies viscérales graves arretées par l'injection de sérum gelatinée. Collet.
44 Beeswax as Vehicle for Drugs to Act in Intestine. Maurel.—De l'incorporation de certaines medicaments dans la cire pour qu'ils ne soient mis en liberté que dans l'intestin.
45 *Action du bleu de methylene sur les ulcérations des tuberculeux. L. Renon and E. Geraudel.
46 Sur l'innocuité absolue de l'acide phosphorique. F. Cautru.
47 (No. 7.) Sur quelques phenomènes (inner phenomena) de la nutrition et des sécretions. J. Renaut. (Commenced in No. 5.)
48 Rational Bicycle Seat. R. Couetoux.—La selle de bicyclette rationelle.

34. To Derive Greatest Benefit from Sulphur Baths in Syphilis.—Dresch points out that if sulphur baths are taken after a course of mercurial treatment, the benefits of the latter are annulled to a great extent as the mercury is eliminated by the waters. On the other hand, if mercurial treatment is instituted after instead of before the sulphur baths, the benefits are immeasurably increased as the system is swept and garnished ready for it. In cases of recurring syphilitic manifestations or merely as a preventive measure, the maximum effect is attained by this combination of mercury following a course of hot sulphur waters.

36. Therapeutic Application of Pawlow's Discoveries.—The discovery that the trypsin of the pancreatic juice is impotent unless its action is solicited by the presence of another ferment which is supplied by the duodenum, has suggested that it may be possible to artificially supply this latter ferment. Hallion and Carrion call the extract of the duodenal mucosa of the pig, which they present for the above purpose, "eukinase." They use it with or without combination with pancreatic juice, in gluten capsules, and hail it as the intestinal "eupeptique par excellence," although it is yet too soon for the sanction of clinical experience.

37. Improved Technic of Iodin Treatment of Boils.—Gallois has found that a combination of 4 gm. of metallic iodin in 10 gm. of acetone is much more effective than iodin alone in the abortion of boils and pimples. He applies it on a cotton pledget on a toothpick. If the lesion is in a particularly sensitive region he applies it very lightly, and if the furuncle has been opened it may smart a little. A drop of a solution of cocain may be advisable for timid persons in such cases. According to his experience this treatment will certainly abort a furuncle or pimple if taken in time.

38. Rectal Administration of Chaulmoogra Oil.—Danlos mixes warm 75 c.c. of milk and 12 c.c. of chaulmoogra oil, and injects it per anum in case of gastric intolerance. He has thus given it twelve times in one case of leprosy and the alvine discharges the next day showed no trace of oil, showing that it must have been duly absorbed.

42. Hyposulphite of Sodium in Dental Caries.—Claret extols the prompt relief and deodorizing effect of the application of a saturated solution of hyposulphite of sodium in two cases of dental caries of the fourth degree.

43. Gelatin in Visceral Hemorrhages.—The first case described by Collet was that of a man of 45 vomiting blood. A subcutaneous injection of a 1 per cent. solution of gelatin in artificial serum was followed in fifteen minutes by a slight hematemesis, probably of the blood already in the stomach at the time, after which the hemorrhage was entirely arrested. Recurring hemoptysis in the second case was checked permanently by a single injection of a 2 per cent. solution. In the third case the patient was a man of 27 in advanced tuberculosis, with daily hemorrhages from the lungs. They were not arrested by the injections of gelatin until the strength was increased to 4 per cent. which definitely abolished further trouble from this source. Collet's experience indicates that the increased coagulability of the blood conferred by the gelatin is comparatively transient, and that one need not hesitate to repeat the injections if the hemorrhages recur.

45. Methylene Blue for Tuberculous Ulcerations.—Renon found that tuberculous ulcerations in the mouth rapidly healed over under daily insufflation of methylene blue in powdered form. In three of the five cases the lesions completely healed and in every instance they cleared up promptly, while pain was relieved at once. He is now studying its action on the ulcerative enteritis of tuberculous subjects, and can already announce that the diarrhea diminishes from the first and in some cases is entirely cured.

Archiv f. Path. Anat., Etc. (Virchow's), Berlin.

49 (169, 3.) *Ueber idiopathische Stauungsleber (passively congested liver). M. Penkert.
50 Ueber einen Fall von Doppel-Carcinom der Gallenblase (gall bladder), zugleich ein Beitrag zur Metaplasie-Frage (question). J. G. Monckeberg.
51 Weitere kritische Ausführungen zum gegenwärtigen Stand (present status of) Plasma-Zellen-Frage. Dazu ein Anhang die Histologie des Tuberkels betreffend. A. Pappenheim.
52 Ueber Plasma-Zellen und Lymphocyten. A. Schlesinger.
53 Die Chemie und Physiologie des Kropfes (of goiter). A. Oswald (Zurich).
54 Experimental Glycosuria Induced by Adrenalin, Reducing Substances and Other Toxins Acting on Pancreas Cells. C. A. Herter and A. J. Wakeman.—Ueber Adrenalin-Glykosurie und verwandte durch die Wirkung reducirender Substanzen und anderer Gifte auf die Pankreas-Zellen hervorgerufene exp. Glykosurien.
55 *Ueber den Ort der Wärmebildung (point of heat production) in dem durch Gehirnstich erzeugten Fieber (in artificially induced fever.) E. Aronsohn.
56 Ueber die Benda'sche Reaction auf Fett- (fat) Nekrosen. W. Liepmann.
57 (170, 1.) Beitrag zur Lehre vom Bau und Wachsthum der Lymphangiome. C. Sick.
58 Histologische Veränderungen im menschlichen und tierischen (alterations in human and animal) Nerven-System, theils als Blitz- theils als elektrische Starkstromwwirkung (from powerful electric action). S. Jellinek.
59 Fat in Kidney Infarcts and Fatty Degeneration. F. Fischler.—Ueber den Fettgehalt von Nieren-Infarcten, zugleich ein Beitrag zur Frage der Fett-Degeneration. Experimental Research.
60 Ueber die Anordnung der elastischen Fasern (arrangement of elastic fibers) im Uterus. L. Pick.
61 Influence of Section of Nerves on Thyroid Gland. J. Katzenstein.—Zur Frage der Wirkung der Nervendurchschneidung auf die Schilddrüse.
62 (No. 2.) Ueber congenitale Muskel-Defecte. R. Bing.
63 Beitrag zur Kenntniss der Organ-Veränderungen (alterations) nach Schilddrüsen- (thyroid gland) Exstirpation bei Kaninchen (in rabbits). W. Bensen. Experimental Research.
64 *Hemorrhages in Suprarenals. M. Simmonds.—Ueber Nebennierenblutungen.
65 Beitrag zur Casuistik der Mesaortitis gummosa. L. Heine.—Three cases.
66 Cause of Action of Diluted and Concentrated Air on the Animal Organism. E. Aron.—Zur Ursache der Einwirkung verdichteter und verdünnter Luft auf den Thierkörper.
67 Ueber Chemismus und Technik der Weigert'schen Elastin-Färbung (stain). B. Fischer.
68 Die Gemination (twin bearing) in ihren erblichen Beziehungen (in relation to heredity). H. Naegeli-Akerblom. Statistical.
69 Das Aufsägen des Schädels ohne Verletzung (sawing skull without injury of) der Dura mater. G. C. Van Walsem.
70 (No. 3.) Störungen (disturbances) der Regeneration von Nieren- (of kidney) Epithelien. R. Rössli.
71 *Zur Histologie und Klinik der Neuro-Fibrom nebst Bemerkungen über das Verhalten (remarks on behavior) der Patella-Reflexe bei Querschnitt- (cross-cut) Lesionen des Rückenmarkes im unteren Brustmark (in lower dorsal spinal cord portion). J. Sorgo.
72 Ueber die Pacchioni'schen Granulationen und ihr Verhältniss (their relation) zu den Sarcomen und Psammomen der Dura Mater. M. B. Schmidt.
73 Ueber Knochen- (bone) tumors mit Schilddrüsenbau (structure of thyroid gland). E. Gierke.—One case.—No primary tumor in the thyroid.

74 Ueber den physiologischen Iodgehalt (iodin contained in) der Zelle. J. Justus.
75 Weitere Beiträge zur Frage der Schaum- (foam) Organe und der Gangrène foudroyante. Cadaveröse Fett-Embolie der Lungen-Capillaren. M. Westenhoeffer. (Cadaver of parturient woman.)

49. **Idiopathic Congestion of Liver.**—Penkert describes the case of a 2-year-old boy in whom the hepatic veins were obliterated, evidently from some congenital anomaly, and resulting in intense congestion of the liver. He could find only one similar case in the literature.

55. **Generation of Fever Temperature.**—Aronsohn describes researches which apparently establish that the higher temperature in both natural and artificially-produced fever is produced by the muscle tissue. The blood does not seem to be directly involved in it, and it is still undetermined whether the glands are concerned.

64. **Hemorrhages in the Suprarenals.**—Simmonds is prosector at Hamburg and has frequently discovered evidences of minute ecchymoses in the suprarenals in various infectious diseases. He regards them as of toxic origin. He has observed cases in which hemorrhagic infarction of both suprarenals proved fatal with the clinical picture of peritonitis and collapse. Hemorrhage in the suprarenals may be due to a hemorrhagic diathesis, to thrombosis of the veins or bacterial embolism of the capillaries or to trauma. Those noted in the newly-born belong in this last group. The thrombosis occurs generally only in chronically debilitated people, and is not due to an inflammatory process. Bacterial embolism may be discovered in subjects free from either clinical or anatomic signs of a septic infection. He has encountered twelve cases of fatal hemorrhage in these organs. When the hemorrhage is unilateral the prognosis may be favorable but not when both are involved.

71. **Neurofibroma.**—Sorgo relates the particulars of a case observed at von Schrötter's clinic. The neurofibroma originates in the peripheral neurilemma of single nerve fibers. The medullary sheath is first involved and later the axis cylinder. The fibers not involved in the neoplasm are liable to become atrophied from compression, but until this occurs the lesion may develop without causing symptoms. Cross section of the dorsal portion of the cord increases the knee jerks on account of the irritation spreading to the reflex centers in the lumbar cord from the pathologic focus. The cells of Clarke's column are less resistant to morbid processes than the large motor cells of the anterior horns. Neurofibromatosis may be a partial sign of a general disposition to pathologic alterations on the part of the connective tissue over large areas of the body, shown in a tendency to neogrowths, interstitial nephritis, glioma, vascular affections, etc. Even in case of absence of compression of the spine, there may be local edema of the skin and local pain on pressure of the spine, but neither are pathognomonic.

Beitraege z. Path. Anat. und z. Allg. Path. (Ziegler's), Jena.

76 (XXXIII, 1-2.) Is There a Primary Affection of the Epithelium Tending to Tumor Formation? G. Hauser.—Giebt es eine primäre zur Geschwulstbildung führende Epithelerkrankungen?
77 Zur Kritik der Tuberculose-Frage. M. Schottelius.
78 Ueber Amitose und Mitose. R. Klemensiewicz.
79 Zur Kenntniss der ependymären Gliome des iv Ventrikels. A. Linck.
80 Ueber färberische Differenzen zwischen den Mastzellengranulationen und den Haemamoeba leucemiæ magna. M. Löwit.
81 Weitere Beiträge zur Pathogenese des Ikterus. H. Eppinger.
82 Zur normalen und path. Histologie der Glandula thyreoidea, parathyreoidea und Hypophysis. J. Erdheim.
83 Ueber trübe Schwellung (cloudy swelling). K. Landsteiner.
84 Beitrag zur Pathologie des Balantidium coli. W. Klimenko.
85 Normale und path. Histologie der Gallen-Capillaren. Beitrag zur Lehre vom Ikterus und der biliären Cirrhose. N. Jagic.
86 Untersuchungen über Polyarthritis chronica adhesiva. M. Kachel.

Berliner Klin. Wochenschrift, Berlin.

87 (XL, 7.) Zur Frage der Abhärtung (question of toughening children). W. Krebs.
88 Die acute Entzündung (inflammation) der Flexura sigmoidea durch Kothstauung (coprostasis). A. Bittorf.
89 Weitere Beiträge zur Lehre von dem Darmfäulniss (putrefaction in intestines). A. Albu.
90 (No. 8.) *Ueber Eiweissmast (albumin fattening). M. Kaufmann and L. Mohr.
91 *Beitrag zu dem Studium der Rinder- und menschlichen (bovine and human) Tuberculose. A. Cipollina.
92 *Das Adeno-Carcinom der Nase (of nose). H. Cordes.
93 Die Beförderung der Reaction nach kalten Wasser-procedduren. S. Baruch.
94 Ueber Fütterungs- (feeding) Tuberculose. D. von Hansemann. (Commenced in No. 7.)
95 Thoughts on the Neuron Question. H. Haenel.—Gedanken zur Neuronfrage.

90. **Albumin Fattening.**—The maximum daily amounts ingested in the two cases studied at von Noorden's clinic were 1,800 c.c. of milk; 800 c.c. of cream; 225 gm. of roast beef; 150 gm. rolls; 250 gm. butter and 40 gm. plasmon. One woman gained on this diet in twenty-three days 4.8 kgm., that is, about 10.5 lbs. The other gained in eight days nearly 3 lbs. The details of the metabolism accessible to clinical tests were carefully noted and are given in tabulated form, especially the retention of the calcium salts.

91. **Transmissibility of Human and Bovine Tuberculosis.**—Cipollina reports that a monkey fed with bovine tubercle bacilli cultures contracted tuberculosis with no primary lesions apparent in the gastrointestinal tract. On the other hand inoculation of a calf with human bacilli resulted negatively. Although these tests are so limited yet he thinks that they suggest that Koch's assertions in regard to bovine and human tuberculosis have led to researches which have established that the bovine bacillus is more virulent for both man and animals than the human tubercle bacillus.

92. **Adenocarcinoma on the Nose.**—The patient was an elderly woman and was cured by electrolysis with no recurrence to date.

Centralblatt f. Bakteriologie, Jena.

96 (XXXIII, 1.) Die Wachsthum und Dauerformen (growth and permanent forms) der Strahlenpilze (Aktinomyceten), und ihre Beziehungen (and their relations) zu den Bakterien. E. Levy.
97 Zur Frage der morph. und biolog. Charakterisierung des Meningococcus intracellularis. H. Jaeger.
98 Ueber einen neuen Stall- (cage) Infektionen verursachenden Mikroorganismus. Schwer (Posen).
99 Die Bakterien-Flora der gesunden und kranken Nasenschleimhaut (nasal mucosa). W. Hasslauer.
100 The Etiology of the Summer Diarrheas of Infants. C. W. Duval and V. H. Basset.
101 Zur Kenntniss des Genus Wageneria Monticello und anderer Cestoden. L. Cohn.
102 *Untersuchungen über die Wirksamkeit des Milzbrandserums des Hundes (efficacy of dog anti-anthrax serum) als Schutz- und Heilmittel. F. Sanfelice (Cagliari).
103 Notiz zur Immunität der Schnecken (of snails) gegen Impfmilzbrand (against inoculation of anthrax). A. Lode.
104 *Ueber die bactericide Wirkung einiger Riechstoffe (of certain aromatics). H. Marx.
105 Ueber der vererbten (inherited) und intrauterinen Uebergang (transmission) der agglutinierenden Eigenschaften (properties) des Blutes (of blood) und die Bildung der Agglutinine im Körper der Embryonen. W. Jurewitsch.
106 (No. 2.) Untersuchungen über Sarcina, Streptococcus und Spirillen. D. Ellis. (Commenced in No. 1.)
107 Studien über Wasser-Bakterien des Leitungswassers der Stadt (flora of water supply) Buenos Ayres mit bes. Berücksichtigung der Pigment-Bakterien. D. Fernandez. (Commenced in No. 1.)
108 Bakt. Befund im Eiter eines gashaltigen Abscesses (bacterial findings in pus of gas-forming abscess). A. Rodella.
109 Meerschweinchen- (guinea-pigs) Epizootie durch eine Varietät des Coli-Bacillus verursachte. K. Kovarzik.
110 Ueber Pebrine und verwandte Mikrosporidien. A. Lutz and A. Splendore (S. Paulo, Brazil).
111 Ueber Lebensfähigkeit (vitality) von Bakterien in Oel. O. Kurpjuweit.

102. **Antianthrax Serum from Dogs.**—The serum from immunized dogs proved able to protect rabbits against subcutaneous injection of virulent anthrax spores ten to forty days afterward. One patient with anthrax also recovered after a total amount of 56 c.c. of the serum had been injected.

104. **Bactericidal Efficacy of Aromatic Substances.**—Marx believes that the ethereal oils liberate oxygen from the air, to which they owe their undoubted bactericidal action.

Centralblatt f. Chirurgie, Leipsic.

112 (XXX, 5.) *Zur Behandlung der Frakturen. Borchard.
113 *Zur operativen Behandlung der veralteten Patellar-Frakturen. M. Sträter.
114 (No. 6.) Zur Frage der Sauerstoff- (oxygen) Chloroform-Narkose. C. Lauenstein.
115 *Zur Technik der "Sondierung ohne Ende" (endless sounding) bei Speiseröhrenverengerungen (strictures in esophagus). Von Hacker.
116 (No. 7.) *Zur Prophylaxis bei der Chloroform-Narkose. L. Feilchenfeld.
117 *Instrument zur Compression der Aorta bei gewissen Bauch- und Becken- (abdominal and pelvic) Operationen. K. Dahlgren.

118 Ein Infilatorium. F. Kuhn (Kassel).
119 (No. 8.) Zur Operatio der Retentio testis inguinalis. C. Longard.
120 *Zur Technik der Behandlung kavernöser Tumoren. E. Payr.

112. **Treatment of Fractures.**—The swelling and jelly-like exudation around a fracture last for twelve to fourteen days before the actual callus begins to form. During this first stage it is possible to prevent the atrophy of the parts by massage, while it does not interfere with the final consolidation, which does not commence until after the twelfth day. Borchard has been very successful in an extensive experience with fractures treated on these principles. He applies, personally, massage of the parts from the very day of the injury, with passive movements of the adjoining joints, of course commencing very mildly. He then applies a cold water bandage and places the limb in a splint. He repeats these procedures every day until the twelfth, when he applies an immobilizing cast until about the twenty-sixth day, after which the massage is renewed and the joints mobilized until complete consolidation. By this technic, atrophy of the muscles and stiffness of the joints are completely avoided as also edema later, while the limb retains its normal shape.

113. **Treatment of Old Fracture of Patella.**—The gap was 6.5 cm. when the knee was extended and 10 cm. when it was flexed in the case reported by Sträter. Even in profound narcosis the gap was 3.5 cm. He detached the quadriceps tendon its entire length and cut it in a Z. This allowed the parts of the patella to be brought within 1 cm., and this gap was finally overcome by chiseling off the tuberosity of the tibia. This brought the fragments together and, besides suturing them directly with a silver wire, a wire was passed entirely around the patella. The tendon was sutured to itself and to the muscles; the capsule sutured and the cutaneous wound closed except for two small strips of gauze. The knee can be flexed to 160 degrees at present, and conditions are approximately normal.

115. **Endless Sounding.**—This is the term applied by von Hacker to the method of dilating strictures of the esophagus by introducing drainage tubes of gradually increasing caliber either by way of the mouth or through the fistula. The tube is drawn through by means of a thread. Some introduce the thread by having the patient swallow a piece of shot to which the thread has been tied. Henle has recently devised the method of tying the thread to one or more small scraps of iron and, after these have been swallowed, he extracts the iron through the fistula by inserting a magnet, to which it clings. Another way, with which von Hacker has been more successful, is to pass a gut string through. His latest improvement, which he deems an actual progress, is to use one-half of a gelatin capsule. A fine silk thread about half a yard long is forced into the cup of the capsule by means of a long strip of whalebone or a fine gut string, the end of the thread left long. The whole is then introduced into the stomach, the pressure from above only pushing the capsule cup farther on the whalebone. After it reaches the stomach and after an interval for the dissolving of the capsule, the patient drinks some water, when the thread is released and floats on the water within reach from the fistula. This procedure is so simple and harmless that it can be repeated every day without trouble and the thread removed in the interim, thus sparing the patient the inconvenience of a thread permanently in the gullet and mouth. It may be necessary to slit the open end of the capsule and bend it, possibly gluing it with a solution of gelatin, to render the process surer. When he changes from one tube to a larger, he stretches the upper end of the first tube and inserts the larger tube in it, thus making the change without discomfort to the patient. The first tube of all is drawn over a small hollow, olive-shaped metal tip, fastened to the end of the thread by a knot inside and with a groove on its farther end, over which the drainage tube is drawn and tied. This enables the transition to be made to the tubes from the thread without danger or inconveniences. Both of these appliances are illustrated.

116. **Prophylaxis in Chloroform Narcosis.**—Feilchenfeld's suggestion that strophanthus be administered to excitable persons for a few days before attempting chloroform narcosis has found wide acceptance. Both Tillmanns and Witzel recommend it as a routine procedure, the latter combining it with digitalis. Feilchenfeld states that the heart must be investigated several times, and if found nervously excitable, this excitability must be reduced before the narcosis. The sounds are dull, sometimes slightly clapping. The apex beat is at the normal spot, but is rather diffuse and indistinct; pulse small and rapid. Such persons should take strophanthus for several days before chloroform narcosis, pure or combined with digitalis, not more than five drops of each three times a day. The pulse becomes slower, the agitation subsides, the appetite improves and the patient sleeps well. The pulse must be brought down to 80 before the narcosis should be attempted. In case of actual muscular weakness of the heart or myocarditis, the arrhythmia must be combatted and the pulse slowed. This will require more energetic measures, digitalis and tepid or carbonated baths with, possibly, injections of strychnin, as recommended by the French for arteriosclerosis. Ether is to be preferred to chloroform in these cases. In case of hypertrophy of the heart muscle, preliminary treatment is indispensable and a morphin injection to supplement the narcosis. Profound narcosis should be avoided. In severe myocarditis one must always be prepared for possible acute danger for the heart from the narcosis.

117. **Compression of the Aorta During Operations.**—Dahlgren found the temporary compression of the abdominal aorta, first suggested and practiced by Lennander, an invaluable aid in preventing hemorrhage in a case of cesarean section, and recommends it for all major operations in the pelvis. The compression can be done with the hand, and has thus been done in the cases to date. But this requires an assistant skilled in anatomy and also compels the enlargement of the abdominal incision. To obviate these inconveniences, he has devised an instrument for the purpose. It consists of a long handle with stirrup-shaped end, at right angles to the shaft, and a stout rubber drainage tube is fastened across the base of the stirrup. A second instrument like a two-tined fork is used to apply pressure at the top of the stirrup when the rubber tube has been placed on the aorta. Very gentle pressure is sufficient to ensure hemostasis. By making the stirrup a little wider it is possible to apply compression to the aorta and also to the hepatic and portal veins at the same time, when operating on the liver.

120. **Treatment of Cavernous Tumors.**—Payr has been advocating for a year the treatment of inoperable cavernous tumors by the introduction of a number of pencils or arrows made of magnesium. The presence of these metallic foreign bodies in the depths of the vascularized tumor leads to processes of coagulation and obliteration, which finally terminate in the complete destruction of the neoplasm and a solid healing. He uses magnesium to ensure absorption of the foreign bodies. In perfecting his technic he has found that it is wise to have a number of the smooth magnesium pencils on hand of assorted sizes to fit all conditions. He introduces them through a small tube with a piston, which enables one after the other to be pushed in without changing the position of the tube. The magnesium pencils must be inserted with some regularity in the tumor tissue to obtain the best results.

Deutsche Zeitschrift f. Chirurgie, Berlin.

121 (LXVI, 3-4.) Experiences in Surgical Bilharzia Affections of Bladder. C. Goebel (Alexandria).—Erfahrungen über die chir. Behandlung der Cystitis und der Basentumoren bei Bilharziakrankheit. Sectio alta, mediana; excochleatio; Resectio partialis vesicæ.
122 *Simultaneous Appendicitis and Cholelithiasis. A. Becker.—Ueber gleichzeitige Erkrankungen an App. und Cholelithiase, resp. Cholecystitis.
123 *Improved Means of Detecting Tubercle Bacilli in Urine. O. H. Forssell.—Eine verbesserte Methode zum Nachweise von Tub.-Bac. im Harn.
124 Ueber Wirkung (action) der Nephrotomie nach (consecutive to) Nephrectomie. Ein weiterer Beitrag zur Frage der Wundheilung in der Niere. O. Langemak. Experimental Research.
125 *Suture of Arteries. H. Schmitz.—Die Arteriennaht.
126 *Anatomic Obstacle to Reposition of Old Dislocation of Shoulder and Means of Remedying It. J. Dollinger.—Das anat. Hinderniss der Reposition bei veralteten subcoracoidalen Schulterverrenkungen und meine Methode der blutigen Reposition dieser Verrenkung.

127 Der functionelle Plattfuss (flatfoot) mit bes. Berücksichtigung seines Entstehens durch Trauma. Herhold.
128 Ueber Peripleuritis. K. Vogel.
129 Blutige Reposition einer irreponiblen Hüftluxation (irreducible luxation of hip-joint). Haedke.
130 Fall von Atresia et Hypoplasia ilei congenita im Folge fötaler Verlagerung (fetal impaction) in eine Mesenterial-Lücke (gap). E. Fuchsig.

122. **Simultaneous Appendicitis and Cholelithiasis.**—In differentiating dubious cases the possibility of a simultaneous affection of both appendix and gall bladder must be borne in mind. It is remarkable that this coincidence has not been more frequently observed. Sonnenburg noticed it only twice in 600 operations for appendicitis, and Kehr ten times in 625 gallstone operations, Czerny four times in 317. Becker has encountered it five times in 125 operations for gallstones and has collected twenty-nine other cases published in the literature, including the above.

123. **Improved Method of Determining Presence of Tubercle Bacilli in Urine.**—Forssell receives 1000 c.c. of urine in a glass tube tapering to a point below where there is a glass screw cock. It is set aside for twenty-four hours. The cock is then turned and the lower part of the contents is drawn out into two strong glass pipettes tapering abruptly to a point. The pipettes are then centrifugalized vigorously for fifteen to twenty minutes. Examination of one or several cover glasses, spread with the contents of this tip of the tube after pouring off the supernatant fluid, will decide the question as to the presence of tubercle bacilli. The tubes are cleaned afterward and filled with a 6 per cent. solution of caustic soda for twenty-four hours, after which they are rinsed again and are ready for use.

125. **Artery Suturing.**—Schmitz gives a historical sketch of this operation, and states that lateral suture of an artery has been done in twenty-one cases and nearly always with signal success. The axillary artery was thus sutured in seven; the femoral in five; the iliac communis, the carotid communis or interna in one each, and the popliteal or brachial in three each. The latter arteries are too small, it has been found, for successful suturing. The conditions for success in suturing an artery are smooth edges to the wound and no gap between them. The vessel must be handled as delicately as possible, hemostasis applied very gently, best with the fingers. After the suture is completed gentle compression with a tampon for one to three minutes favors the formation of the clot. The experiences to date indicate that the entire wall can be included in the suture without fear of thrombosis, endarteritis or narrowing of the lumen. The adventitia can be drawn up afterward over the wound and a few stitches taken in it to strengthen it. The needle and thread must be very fine. Catgut was used in four successful cases, but silk seems preferable. The femoral artery was invaginated and a circular suture applied in three successful cases, in two on account of adhesion to a tumor and once on account of a bullet wound. Experimental researches have also confirmed the advantages of this method of treating extensive destruction of an artery. Even in case the lumen of the artery should become obstructed later, it occurs so gradually that there is time for collateral circulation to become established.

126. **Obstacle to Reduction of Old Dislocation of the Shoulder.**—Dollinger has found that the head is caught and held by the retracted and sclerotic subscapular muscle in old cases. All that is necessary to reduce the dislocation is merely to sever the tendon of this muscle near its insertion. The arm can then be easily abducted and the dislocation reduced by Kocher's rotating and raising method as readily as in case of a recent luxation. His experience includes five cases. He illustrates the anatomic relations he found in them, showing the rôle played by the muscle referred to.

Wiener Klin. Wochenschrift, Berlin.

131 (XV, No. 51.) Results of Traumatic Detachment of Epiphysis. H. Lorenz.—Zur Frage der Wachsthumsstörungen und Gelenksdeformitaten infolge von traumatischen Epiphysentrennung. One case.
132 Beiträge zur Morphin-Skopolamin-Narkose. K. Schickberger.
133 Zur Kenntniss der lokalen Veränderungen (changes) nach intramuskularen Injektionen von Hydrargyrum salicylicum. C. Pezzoli.
134 Ueber die Beobachtungen von Darmbewegung (observation of movements of intestines) im cystoskopischen Bilde. W. Latzko.
135 Ibid. J. Halban.
136 Stellung der Aerzte zu den Hilfskassen (position of medical men to the benefit societies). A. Klein.
137 *Filling for Bone Cavities. Mosetig-Moorhof.—Die Knochenplombe.
138 (No. 52.) Anatomisch-physiolog. Untersuchungen an Tieren (studies of animals) mit congen. Labyrinth-Anomalien. G. Alexander.
139 Sprengelsche Difformität mit Cucullaris-Defekt und rechtsseitiger Wander-Niere (kidney) bei einem 12 jährigen Knaben. C. Hödlmoser.
140 *Ueber subkutane Gelatine-Injektionen im Kindesalter. Zuppinger.
141 Fall von traumatischer Pankreas-Cyste. Heilung nach Operation. Vorübergehende (transient) Diabetes. K. Pichler.
142 *Fall von Gastrotomie wegen Blutung (on account of hemorrhage) infolge von traumatischer Ruptur der Magenschleimhaut (gastric mucosa). F. v. Winiwarter.
143 (XVI, 1.) *Verätzungs-Strikturen des Esophagus. Mosetig-Moorhof.
144 Weiterer Beitrag zur Kenntniss der Sialo-Lithiasis. F. Hanszel.
145 Perlsucht und menschliche Tuberculose. F. Schanz.
146 Die Behandlung Lungenkranker in einem öffentlichen Krankenhause (treatment of consumptives in public hospital). Teuner.
147 (No. 2.) *Ueber subkutane Paraffin-Injektionen. L. Moszkowicz.
148 Zwei Fälle von Dupuytren'scher Finger-Contraktur bei Tabes, resp. Tabes mit multipler Sklerose. W. Neutra.
149 *Phlebolithen in Genital-Organe des Weibes (in the female). K. Czorwenka.
150 (No. 3.) *Zur Frage der Verwerthbarkeit der Leucocyten-Bestimmung (value of leucocyte count) bei Erkrankungen des weiblichen Genitaltraktes (in affections of female genitalia). A. Weiss.
151 Heteropie im histol. Aufbau (structure) eines fibrösen Uterus-Polypen. E. Pollak.
152 Zwei Fälle von congenitalem partiellen Clavicular-Defekt. K. Preleitner.
153 (No. 4.) *Zur Pathologie und Therapie des Asthma. M. Sihle (Odessa).
154 Menièrescher Symptomkomplex mit Anosmie und Ageusie. A. Strubell.
155 Ueber specifische Virulenz-Steigerung (increase) in vitro. F. Hamburger.
156 *Ueber Knochenveränderungen (changes in bones) bei gonorrhoischer Arthritis und akute Knochen- (bone) Atrophie überhaupt. R. Kienböck. (Commenced in No. 3.)
157 Absorption of Active Oxygen Through the Skin. J. Thenen.—Sauerstoffzufuhr durch die Haut.
158 (No. 5.) Ueber Immunisierung von Bakterien. F. Wechsberg.
159 Zur Symptomatologie der "unter dem Bilde der Pseudo-Leukemie verlaufenden Lymphdrüsen- (glandular) Tuberkulose." H. Schur.
160 Beitrag zur Klinik der Prostata-Tumoren. G. Kapsammer.

137. **Filling for Bone Cavities.**—For three years Moorhof has been plugging bone cavities with a combination of 60 parts iodoform in 40 parts each of spermaceti and oil of sesame. The ingredients are slowly heated together to 212 F. and kept at this point for fifteen minutes, then allowed to cool, while the vessel is constantly shaken to ensure the complete emulsifying of the iodoform. He has now an experience of more than 100 cases thus treated. The filling was always well tolerated. The cavity must be scraped far into sound tissue, as aseptic conditions are indispensable. It is then rinsed with a 1 per cent. solution of formalin and thoroughly dried with a jet of hot air. The filling is warmed in a thermophore to about 122 F., and the cavity is filled with it to the brim. As it penetrates into every crevice there is no danger of hemorrhage, but any exposed vessels in the soft parts are first tied off. The filling hardens in a few minutes; the periosteum and other soft parts are then drawn back over it and sutured without drainage unless there has previously been a fistula, in which case drainage is advisable, as also in intervention on the joints. After all sutures and dressings have been applied, the constricting bandage above is then removed and the limb raised. The dressings are not changed until the second or third week. The after-course is almost invariably afebrile. There may be a slight evening rise the second day. No symptoms of iodoform intoxication were observed in any instance. The filling is gradually absorbed and a bone growth takes its place, but the patient can use his limb freely as soon as the soft parts have healed. In one instance he thus substituted the astragalus and calcaneum in a boy of 12, with caries aperta. Nothing was left of the calcaneum but the periosteum; 200 gm. of filling were required for the cavity. The other foot was operated on a month later, the navicular, cuboid, three cuneiform bones and the bases of the metatarsal bones removed. Both wounds healed rapidly.

140. **Gelatin as a Hemostatic for Children.**—Zuppinger witnessed the death of a girl of 8 with hemorrhagic purpura whose nose had been tamponed to arrest uncontrollable bleeding. The hemorrhage was apparently arrested, but the child died suddenly soon afterward, and the air passages were found full of accumulated blood. Since that time he has made a practice of subcutaneous injection of a 2 to 5 per cent. solution of gelatin in all hemorrhagic affections in children, and has found it invariably successful in controlling the bleeding. He has sometimes used a 10 per cent. solution. Holtschmied has reported that he saved the lives of five infants with melena neonatorum by injection of 15 c.c. of a 2 per cent. solution. In three the effect was immediate; the others required one or two more injections. Others have published similarly favorable results in this formerly hopeless affection. A few drops of a concentrated solution applied to the bleeding point in cases of hemorrhage in the throat, etc., have instantaneously arrested it in many cases.

142. **Rupture of Stomach Mucosa.**—The rupture occurred in a football game; the young man running at full speed was hit in the pit of the stomach by the elbow of one of his opponents. He was able, after a time, to continue playing. Two or three days later he noticed a sharp intermittent pain at the right costal arch, which was aggravated by eating and drinking. The eleventh day, after drinking a large quantity of beer, there was vomiting and sharper pain, and a few days later, after a copious meal, sudden oppression, vertigo, cold perspiration, vomiting of blood and melenic stools. The laparotomy disclosed that the serosa was intact, but a laceration 8 cm. in length was found in the mucosa. The patient made a good recovery after the rupture had been sutured. It is probable that such lacerations from contusion of the stomach region are common, but usually heal spontaneously or present the clinical picture of an ulcer later. This case would probably have run this course if it had not been for the immoderate beer and wine drinking. It suggests the necessity for complete abstinence in cases of gastric disturbances after contusion of the stomach region. The sharp, persistent pain at the costal arch may serve to differentiate the injury.

143. **Strictures of Esophagus.**—Moorhof has been able to close the stomach fistula without a laparotomy in cases of stricture from action of caustics. He incises around the fistula and down to within .5 cm. of its orifice in the mucosa. When the fistula canal thus stands up alone and detached—injury being prevented by a sound inserted in it—he then pushes the entire canal in, turning it wrong side out and suturing the outer orifice and then the abdominal walls above it. By this means the opening of the fistula can heal without interference from the gastric juice. He has treated fistulas into the bladder in the same way with complete success. In one case he describes, all the urine was voided through the large fistula, but after treatment in this way not a drop of urine oozed through. It is necessary to carry the incision a little above and below the circular one. In his experience the Billroth conical bougie has frequently passed a stricture in the esophagus, impervious to all other instruments. These bougies are filled with quicksilver and act by the constant pressure of their weight. He gives the particulars of five cases of nearly impermeable stricture, which he cured by these measures.

147. **Paraffin Prothesis.**—This communication from Gersuny's service describes the experience of the inventor of this procedure. He states that the prothesis has not altered in size in cases treated three years ago.

149. **Phleboliths in Genital Organs.**—In the case described a iiipara of 40 applied for relief from uterine hemorrhage. In the veins around the cervix and along the upper portion of the vagina were found a number of concretions, small balls of calcium phosphate and carbonate. The ovarian and other veins were apparently intact. The uterus was the seat of a hemorrhagic endometritis, but, as it was impossible to remove all the phleboliths that could be palpated, the prognosis is not favorable.

150. **Leucocyte Count in Gynecologic Affections.**—Weiss proclaims from Chrobak's clinic that a negative leucocyte count in the early phases of a gynecologic affection entirely excludes the assumption of a suppurative process. Constant leucocytosis of 16,000 and over points to such a process, but this leucocytosis gradually declines as the affection progresses. It is still high enough, however, by the time the patient seeks a physician to indicate its character.

153. **Pathology and Therapy of Asthma.**—Sihle contributes a long article, in which he seeks to establish that asthma is a neurosis in the respiratory and circulatory domains. There are four elements, hypertonicity of the unstriated muscles of the air passages, hypotonicity in the vascular system, including the heart, a bronchial secretion of nervous origin, and a congestion of the entire mucous lining of the air passages. These four elements can be brought into play by the action of the peripheral nervous system, by irritants circulating in the blood, or by the action of the cortex, that is, the asthma may be peripherigenic, hematogenic or psychogenic. He cites some interesting examples of the benefit that may be derived from treatment along these lines, with therapeutic suggestion as the leading motif, and each element in the symptom-complex receiving its due consideration.

156. **Acute Atrophy of the Bones.**—Kienböck is an *x*-ray expert and has been making a special study of the changes in the bones revealed by the *x*-ray from four to eight weeks after some injury or inflammation of the extremities, especially those developing with much pain or requiring immobilization, fractures, osteomyelitis, joint tuberculosis, contusions or phlegmons of the soft parts. The bone casts a lighter shadow than normal, especially the spongiosa nearest the focus, or the lighter portions may occur in patches. The calcium salts are absorbed and the bone becomes pathologically altered in time. The condition may, likewise, be induced by injuries or affections of the central or spinal nervous systems. Before the discovery of the x-rays it was impossible to diagnose it until in an irreparable state, as the early stages cause little if any symptoms. Treatment must be mainly prophylactic. When this tendency to pathologic softening of the adjacent spongiosa is recognized and its dangers realized, the physician will aim to cure the underlying affection as rapidly as possible. If the *x*-rays show that the softening of the bone has already commenced, especially if in a joint, it must be exercised and massage applied, regardless of the pain it may induce, with Faradization, baths and, possibly, therapeutic passive congestion. In orthopedic treatment of the later ankylosis, luxations, etc., the fragility of the atrophied bone must be borne in mind.

Sei-I-Kwai, Tokyo, Japan.

161 (XXII, 1.) The Impregnated and the Unimpregnated Ova of Ascarides. K. Miura and N. Nishiuchi.
162 On the Weight of the Encephalon of the Japanese. K. Taguchi.

British Medical Journal, London.

March 7.

163 *Some Misconceptions with Regard to Diseases of the Liver. W. Hale White.
164 *Adenoma and Adeno-carcinoma of the Rectum. Charles B. Ball.
165 The Conditions Which Modify the Characters of Inflammations of the Skin, and Their Influence on Treatment. H. Radcliffe Crocker.
166 Case of Apparent Secondary Abdominal Pregnancy in a Rabbit After Primary Rupture of the Uterus. Kurt Kamann.
167 Case of Rheumatic Fever Complicated by Chorea, Iritis and Endocarditis—Recovery. Fred. C. Forster.
168 Bright's Disease; Anuria; Intestinal Hemorrhage; Death. Lyster Cole-Baker.
169 Diabetic Coma Treated by Transfusion. David Young.

163. **Diseases of the Liver.**—The misconceptions alluded to by White are, first, the common belief that alcoholic excesses are solely the cause of hepatic cirrhosis, while, in reality, some other cause must also be at work to produce the symptom. Nevertheless, the common type of hobnail liver is almost invariably the result of alcoholic drinking. He points out the characteristics of syphilitic cirrhosis, which, however, is so rare that it will be of little clinical importance. Malaria, which is given as the cause of cirrhosis, is, in his opinion, largely imaginary. We have really no obvious cause, except alcoholic drinks, for the usual type and while it is

experimentally true that obstruction of the bile duct will cause cirrhosis, it is rarely clinically, if not almost unknown, notwithstanding the frequent cases of pressure on the duct by cancers, growths, etc. Another misconception is in the attempt to draw a sharp distinction between atrophic and hypertrophic cirrhosis. In considering these, we must exclude Hanot's cirrhosis, which is a separate disease, occurring almost exclusively in children. White holds that there is really no distinction between atrophic and hypertrophic liver, but that the former is an earlier stage of the latter. The presence of ascites in atrophic liver is only natural, seeing that it occurs in the late stages of the disease. He notices the symptoms; ascites, a very serious one; jaundice, which may occur early; swelling of the feet; anemia; hemorrhages, etc. The disease we call alcoholic cirrhosis, which is so frequently associated with the consumption of alcohol, though some other factor is also present, is not a local disease, any more than granular disease of the kidney is a local condition of that organ. He insists on the importance of ascites in the prognosis. If a patient in an uncomplicated case has ascites, he is very near the end. He also notes the occurrence of perihepatitis, the zuckerguss liver of the Germans and remarks on certain symptoms of primary malignant disease, which he thinks occurs in a certain proportion of cases. He takes a midway position between those who hold that malignant disease is very rare and those who, like Friedreichs, claim that it occurs in one-third of all cases. He had in his necropsies about one case of primary malignant disease of the liver to every twenty-four, where it was secondary.

164. **Adeno-Carcinoma of the Rectum.**—Ball's lecture gives the details of operative treatment, perineal excision, the Kraske operation, the abdominal method, etc.

The Lancet, London.

March 7.

170 The Nature and Anatomy of Enteroptosis (Glenard's Disease). Arthur Keith.
171 *The Conditions Which Modify the Characters of Inflammations of the Skin, and Their Influence on Treatment. H. Radcliffe Crocker.
172 The Rise of Blood Pressure in Later Life. T. Clifford Allbutt.
173 Report on the Influence of Sanitation in Checking Enteric Fever and Dysentery at Harrismith, Orange River Colony, South Africa, in the Years 1901 and 1902. R. M. Le Hunte Cooper.
174 A Case of Acute Tetanus with Certain Points of Interest. L. Dimock Saunders.

171. **Skin Inflammations.**—Crocker's second lecture treats first of microbic infection and the conditions which favor it. He also notices the importance of the absorption of intestinal toxins in the production of skin diseases and the part played by the nervous system, especially in special vasomotor areas. Pregnancy is responsible for a few eruptions, the most notable one being herpes gestationis. The influence of season is also mentioned, as in summer and winter prurigo, also the effects of ingesta and drugs. He remarks, in conclusion, in regard to gout as having a primary position as an etiologic modifying factor of dermatitis. While he does not doubt that gouty patients are predisposed to eczema and some other forms, there is no doubt that its influence has been much overrated by the profession.

The Practitioner, London.

March.

175 *On the Mode of Production of Fractures of the Lower Extremity by Indirect Violence. W. Arbuthnot Lane.
176 *Examination of the Blood: With Examples of the Wide Range of Its Value. Herbert French.
177 *Lorenz's Method of Treating Congenital Dislocation of the Hip. J. Jackson Clarke.
178 Experiences of an Epidemic of Cerebrospinal Meningitis. R. Travers Smith.
179 *A Note on Gastric Tetany. B. G. A. Moynihan.
180 The Use and Abuse of High-Frequency Electricity in Medicine. H. Lewis Jones.
181 The Phenomena of Tidal Percussion at the Apices of the Lungs, and Their Interpretation—A Reply to Dr. Philip. E. H. Colbeck.
182 Diseases of the Liver—A Review of Some Recent Work. H. D. Rolleston.
183 Cerebral and Mental Diseases in Relation to General Medicine—A Review of Recent Work. H. Campbell Thomson.
184 The Prevention of Measles. George Newman.
185 The Imperial Vaccination League. Edward J. Edwardes.

175. **Fractures of the Lower Extremity.**—Lane criticises the anatomic works, with their various descriptions of the mechanism of the joints of the lower extremity, remarking that the lateral movement of the ankle joint is not extensive. It is a fairly perfect hinge joint. The surgical anatomy, he thinks, is even worse in the text-books. The only method of treating, for instance, in Pott's fracture with displacement, owing to the mechanism of the injury, is by pinning together of the broken parts. Fracture of the tibia and fibula produced by indirect violence is almost always spiral and requires similar treatment, holding the parts in position by wires or screws. The spiral fracture of the femur is brought about in a similar way. He says it is a pity that anatomists, when writing text-books for students, do not confine themselves to improving on the existing, generally inaccurate, descriptions of the mechanics and functions of the skeleton, instead of attempting, under the title of surgical anatomy, to confuse the student by statements and illustrations which are usually extraordinarily incorrect.

176. **Blood Examination.**—The importance of blood examination is emphasized by French and the methods described, with illustrative cases of the value of the leucocyte count, hemoglobin estimates, red corpuscle counts, etc. Specific gravity is also of some importance, and he describes the method of testing it by a mixture of chloroform and benzene of the specific gravity of the normal blood. A drop of blood put into this will float or sink as its specific gravity varies from the normal and by putting more chloroform or benzene into the test tube, to bring it to exact equilibrium, the figures as read off on the urinometer will determine its specific gravity. He details the blood examination as follows:

> The ear is pricked. 1. Blood films are made and dropped into absolute alcohol and ether. 2. Blood is drawn up into the red-corpuscle pipette to the mark of 0.5, diluted to the mark 101 with Hayem's fluid, quickly mixed, and put aside to count presently. 3. The same is done with blood in the white corpuscle pipette. 4. Blood is drawn up to the mark on the hemoglobinometer pipette, expelled into a little distilled water in the graduated tube, and thus laked. 5. Then another drop is taken in the same pipette and put into the mixture of benzine and chloroform. The pipette should then be cleaned. This is quickly done by drawing distilled water up into it two or three times, blowing it out again each time; then in the same way, drawing up absolute alcohol twice successively, to dehydrate the tube, and, finally, ether in the same way, to remove the alcohol and to leave the tube dry and clean when the ether evaporates, as it does in a few minutes. The determination of the specific gravity may then be completed, and the chloroform and benzine returned to a stoppered bottle for future use; the blood drops are readily filtered out by pouring it through muslin. The hemoglobin estimation may then be continued and completed. Finally, after further complete mixing in the pipettes before samples are taken, the red and white corpuscles are successively enumerated under the microscope. The films wait until next day, and then require but ten minutes for their staining and mounting.

The complete blood examination, without a differential leucocyte count, need not occupy more than three-quarters of an hour; a differential count will take a little longer.

177. **The Lorenz Method in Congenital Hip Dislocation.**—Clarke reviews Lorenz's manipulations, and sums up as follows:

> Lorenz's method of treating congenital dislocation of the hip is based on correct anatomic and physiologic grounds; it is the outcome of an exceptional experience, both of open and subcutaneous operating; in a considerable proportion of cases it gives a perfect anatomic and physiologic result (i. e., it cures a condition hitherto deemed incurable); in a still greater number of cases it affords a permanent functional improvement that relieves the patient of the grievous disabilities which the deformity usually entails if left untreated. In the remaining cases, in which the method fails to give a firm articulation placed anteriorly, the manipulative operation of Lorenz is a necessary preliminary to any subsequent treatment by open operation that may be undertaken. The manipulative operation is free from danger, save when treatment has been too long delayed.

179. **Gastric Tetany.**—Moynihan reports a case with recovery, though the patient afterwards died of pneumonia. The point which he emphasizes is that gastric tetany is not the rare or serious disease which has been described by Frankl Hochwart and others. Of the five cases which he has observed, all were due to simple diseases; gastroenterostomy was performed in all, and all recovered.

Journal of Tropical Medicine, London.

March 2.

186 Oriental Sore with Specific Orchitis. Dr. Manson.
187 The Antisepsis of Major Eye Operations, as Practiced by Some of the Leading Ophthalmologists of Europe. (To be continued.) R. H. Elliot.
188 Cases Illustrative of Elephantiasis. W. Renner.
189 Notes on a Case of Ainhum in South Africa. John Muir.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Volume I. March, 1903. Surgery of the Head, Neck and Chest—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia, and Influenza—Diseases of Children—Pathology—Laryngology and Rhinology—Otology. Cloth. Pp. 450. Price, $2.50. Philadelphia and New York: Lea Brothers & Co. 1903.

THE DISEASES OF WARM COUNTRIES. A Handbook for Medical Men. By Dr. B. Scheube, State Physician and Sanitary Adviser, Greiz. Translated from the German by Pauline Falcke, with Addenda on Yellow Fever, by James Cantlie, M.B., F.R.C.S.; and on Malaria, by C. W. Daniels, M.B., M.R.C.S. Edited by James Cantlie, M.A., M.B., F.R.C.S., D.P.H., Lecturer at the London School of Tropical Medicine. With All the Original Colored Maps, Charts, Illustrations, Etc., Together with Many Additional Plates, from the *Journal of Tropical Medicine*. Second Edition, Revised. Cloth. Pp. 594. Price, $8.00 net. Philadelphia: P. Blakiston's Son & Co. 1903.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfurt a. M. Authorized American Edition, Translated Under the Direction of Boardman Reed, M.D., Professor of Diseases of the Gastro-intestinal Tract, Hygiene, and Climatology, Department of Medicine, Temple College. Part III. Membraneous Catarrh of the Intestines (Colica Mucosa). By Prof. Dr. Carl von Noorden, with the Collaboration of Dr. Carl Dapper. Cloth. Pp. 64. Price, $0.50. New York: E. B. Treat & Co. 1903.

THE MYCOLOGY OF THE MOUTH. A Text-Book of Oral Bacteria. By Kenneth Weldon Goadby, D.P.H. Camb., L.R.C.P., M.R.C.S., L.D.S. Eng., Bacteriologist and Lecturer on Bacteriology, National Dental Hospital. With Illustrations. Cloth. Pp. 241. Price, $3.00 net. London, New York, Bombay: Longmans, Green & Co. 1903.

PROCEEDINGS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION. At the Fifty-eighth Annual Meeting, Held in Montreal, Que., June 17-20, 1902. Cloth. Pp. 333. Published by American Medico-Psychological Association. 1902.

BACTERIA IN DAILY LIFE. By Mrs. Percy Frankland, Fellow of the Royal Microscopical Society. Cloth. Pp. 216. Price, $1.75 net. London, New York and Bombay: Longmans, Green & Co. 1903.

MEDICO-CHIRURGICAL TRANSACTIONS. Published by the Royal Medical and Chirurgical Society of London. Volume XXXV. Cloth. Pp. 369. London: Longmans, Green & Co. 1902.

SIXTH ANNUAL REPORT OF THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL, Washington, D. C., 1902. Paper. Pp. 54.

REPORT OF THE TRUSTEES OF THE NEWBERRY LIBRARY, for the Year 1902. Paper. Pp. 28. Chicago. 1903.

The Public Service.

Navy Changes.

Changes in the Medical Corps of the Navy, for the week ending March 14, 1903:

Surgeon G. P. Lumsden, detached from the *Hancock* and ordered home to wait orders.

Medical Director J. R. Waggener, commissioned medical director from Jan. 20, 1903.

P. A. Surgeons H. H. Haas and W. H. Bucher, commissioned passed assistant-surgeons from Jan. 10, 1903.

P. A. Surgeons E. O. Huntington, J. B. Dennis and E. Thompson, commissioned passed assistant-surgeons from Feb. 10, 1903.

Asst.-Surgeon B. H. Dorsey, appointed asst.-surgeon March 2, 1903.

Pharmacist I. N. Hurd, detached from the Navy Yard, Portsmouth, N. H., and ordered to Washington, D. C., for examination for retirement, and thence home to wait orders.

Surgeon E. S. Bogert, Jr., detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered home to wait orders.

A. A. Surgeon P. F. McMurdo, ordered to the *Gloucester*.

P. A. Surgeon W. P. Grove, detached from duty with Marine Detachment, Culebra, P. R., and ordered to Naval Hospital, New York, for treatment.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended March 12, 1903:

P. A. Surgeon A. R. Thomas, granted leave of absence for two months from February 25.

Asst.-Surgeon J. W. Kerr, leave of absence granted by Department letter of Sept. 20, 1902, amended so that said leave shall be for one month and fifteen days.

Asst.-Surgeon A. D. Foster, on the return of medical officer in command, relieved from duty at Wilmington, N. C., and directed to proceed to Charleston, S. C., and assume command of the service, relieving A. A. Surgeon F. F. Sams.

A. A. Surgeon L. C. Bean, granted leave of absence for two days.

A. A. Surgeon B. W. Goldsborough, granted leave of absence for one day.

A. A. Surgeon W. E. Patrie, granted leave of absence for fourteen days from February 27.

A. A. Surgeon J. C. Rodman, granted leave of absence for three days.

Pharmacist J. Achenbach, relieved from duty at Port Townsend Quarantine, Wash., and directed to proceed to Port Townsend, Wash., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist R. F. Troxler.

Pharmacist E. J. Thurston, to proceed to Gulf Quarantine and report to medical officer in command for duty.

Pharmacist C. H. Woods, granted leave of absence for twenty days from March 21.

Pharmacist H. E. Davis, relieved from duty at Louisville, Ky., and directed to proceed to Memphis, Tenn., and report to medical officer in command for duty and assignment to quarters, relieving Pharmacist E. M. Holt.

Pharmacist R. F. Troxler, on being relieved from duty at Post Townsend, Wash., to proceed to Port Townsend Quarantine and report to medical officer in command for duty.

Pharmacist E. M. Holt, on being relieved from duty at Memphis, Tenn., directed to proceed to Louisville, Ky., and report to medical officer in command for duty and assignment to quarters.

PROMOTION.

Asst.-Surgeon H. B. Parker, commissioned as passed asst.-surgeon, to rank as such from March 3, 1903.

RESIGNATION.

P. A. Surgeon A. R. Thomas, resigned, to take effect April 25, 1903.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended March 14, 1903:

SMALLPOX—UNITED STATES.

Alabama: Mobile, Feb. 28-March 7, 11 cases.

California: Fresno, Feb. 1-28, 23 cases; Los Angeles, Feb. 22-28, 4 cases; Sacramento, Feb. 22-28, 3 cases; San Francisco, Feb. 22-March 1, 8 cases.

Colorado: Denver, Feb. 22-28, 10 cases.

Florida: Jacksonville, Feb. 28-March 7, 3 cases.

Illinois: Feb. 28-March 7, Alton, 1 case; Chicago, 12 cases, 4 deaths.

Indiana: Elwood, March 1-8, 6 cases; Evansville, Feb. 28-March 7, 5 cases; Indianapolis, Feb. 28-March 7, 19 cases, 8 deaths.

Iowa: Davenport, Feb. 28- March 7, 1 case.

Kansas: Wichita, Feb. 28-March 7, 2 cases.

Kentucky: Lexington, Feb. 28-March 7, 1 case; Newport, March 1-8, 1 case.

Louisiana: New Orleans, Feb. 28-March 7, 3 cases.

Massachusetts: Feb. 28-March 7, Fall River, 2 cases; New Bedford, 1 case.

Michigan: Feb. 28-March 7, Ann Arbor, 1 case; Marquette, 1 case; Port Huron, 5 cases.

Missouri: St. Louis, March 1-8, 5 cases.

Nebraska: Omaha, Feb. 28-March 7, 2 cases.

New Jersey: Jersey City, March 1-8, 1 case; Newark, Feb. 28-March 7, 3 cases.

New York: Buffalo, Feb. 28-March 7, 1 case, 1 death.

Ohio: Cincinnati, Feb. 27-March 6, 6 cases, 1 death; Cleveland, Feb. 28-March 7, 2 deaths; Dayton, Feb. 28-March 7, 5 cases; East Liverpool, Feb. 1-28, 2 cases.

Pennsylvania: Feb. 28-March 7, Erie, 3 cases; Johnstown, 1 case, 1 death; McKeesport, 1 case; Philadelphia, 17 cases, 4 deaths; Pittsburg, 27 cases, 1 death.

South Carolina: Charleston, Feb. 28-March 7, 2 cases, 1 death.

Tennessee: Memphis, Feb. 28-March 7, 3 cases.

Utah: Salt Lake City, Feb. 23-March 7, 26 cases.

Wisconsin: Green Bay, March 1-8, 1 case; Milwaukee, Feb. 28-March 7, 6 cases.

SMALLPOX—FOREIGN.

Austria: Prague, Feb. 7-14, 6 cases.

Belgium: Antwerp, Feb. 7-14, 1 case; Liege, Jan. 31-Feb. 7, 1 case, 1 death.

Brazil: Rio de Janeiro, Jan. 17-Feb. 6, 14 deaths.

Canada: Hamilton, Feb. 28-March 7, 1 case; Winnipeg, Feb. 1-28, 2 cases.

Canary Islands: Las Palmas, Feb. 7-14, 32 cases.

Germany: Hamburg, Feb. 14-21, 1 case.

Great Britain: Birmingham, Feb. 14-21, 8 cases, 1 death; Dublin, Feb. 14-21, 2 cases; Leeds, Feb. 14-21, 9 cases, 2 deaths; Liverpool, to Feb. 21, 105 cases, 5 deaths; London, Feb. 14-21, 7 cases; Manchester, Feb. 7-21, 52 cases, 3 deaths; Sheffield, Feb. 7-21, 4 cases.

India: Bombay, Feb. 3-10, 53 deaths.

Mexico: City of Mexico, Feb. 15-22, 2 cases, 1 death.

Russia: Odessa, Feb. 7-11, 3 cases, 1 death; St. Petersburg, Feb. 7-14, 75 cases, 14 deaths; Warsaw, Feb. 19-26, 2 deaths.

Spain: Barcelona, Feb. 1-15, 4 deaths; Malaga, Jan. 1-31, 3 deaths; Valencia, Feb. 1-15, 3 deaths.

Straits Settlements: Singapore, Jan. 10-17, 4 deaths.

Switzerland: Zurich, Feb. 7-14, 1 case.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 16-Feb. 6, 75 deaths.

Mexico: Vera Cruz, Feb. 21-28, 3 cases, 3 deaths.

CHOLERA—FOREIGN.

India: Bombay, Feb. 3-10, 1 death; Calcutta, Jan. 31-Feb. 11, 33 deaths.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, Jan. 16-Feb. 6, 4 deaths.

India: Bombay, Feb. 3-10, 649 deaths; Calcutta, Jan. 31-Feb. 7, 142 deaths; Karachi, Feb. 1-8, 38 cases, 39 deaths.

Mexico: Mazatlan, Feb. 7-14, 41 cases, 20 deaths; to March 6, 302 cases, 250 deaths.

PLAGUE—INSULAR.

Hawaii: Hilo, March 9, 1 death.